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18 October 1984

# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT



FOREIGN BROADCAST INFORMATION SERVICE

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18 October 1984

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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CHANGE IN SATELLITE TRANSMISSION SYSTEM DETAILS

BK240327 Sydney THE AUSTRALIAN in English 11 Sep 84 p 1

[Article by Jane Ford]

[Text] In a major policy turnaround, the federal government is to announce a new satellite transmission system for remote television and radio services which will improve reception but increase costs--and could delay the introduction of the service.

The decision, expected in the next few days from the minister for communications, Mr Duffy, means the abandonment of the government's commitment to use the normal PAL transmission system in favor of new, but still unproven, advanced transmission technology.

The system, known as multiplexer analogue components type B or B- MAC, should not only improve reception but allow remote communities using the ABC's [Australian Broadcasting Corporation] new homestead and community broadcasting satellite service the use of six channels including several stereo radio services.

It is believed individual earth stations for the service will cost at least \$1500 compared with an expected \$1000 for the PAL receivers, and the cost to remote communities could range from \$10 million to around \$100 million.

This is based on an estimate of 25,000 earth stations for an ABC-only service, to treble that number if the government allowed the direct broadcast of commercial TV to the outback.

There are fears the turnaround in government policy could lead to delays. In February, the government promised all 300,000 people in remote and underserved areas of Australia would have access to ABC TV and radio by the end of 1985.

The government then said it had decided to stay with the established technology of the PAL system as it was available and had been tested thoroughly.

Mr Duffy said he was concerned the service should be based on known technology compatible with Australia's existing household TV sets and was making the

announcement to ensure that low-cost and reliable earth stations will be available to all remote users by the end of next year.

However, sources yesterday said the new B- MAC technology was not yet proven.

They also said the new technology was likely to lead to increased costs for the earth stations needed to be installed by remote users to receive the service.

But an ABC engineer involved in the satellite service said there would be no problems in introducing the new technology on time from the ABC's point of view. They had been advocating its use for years and only wished the government had responded earlier.

The government said in February an earth station would cost around \$1000 for a 1.2m antenna. It is believed the earth station for the new transmission system will require a 1.5m antenna at a minimum cost of at least \$1500. This will include the cost of a black box to convert the MAC transmission signal so it can be received on an ordinary TV set.

People living outside the main zone of satellite transmission will have to pay as much as \$3000 for a much larger dish to receive the signal.

The policy change has been caused by the poor results of trials of the PAL system. A total of 134 prototype earth stations were tested at Port Hedland, Alice Springs and Innisfail, and all showed serious problems in degradation of signals, intermittent color and overall bad reception.

It also became obvious that there would be problems if the system was used to carry more than one TV channel. The new B- MAC system will be able to carry one TV channel, two channels of audio, two of FM, leaving two channels vacant for other radio services.

One major proponent of the new system has been Plessey Australia Pty Ltd which holds the rights to the necessary technology through an arrangement with Scientific Atlanta of the United States.

The U.S. company has the lead in the technology which has been sub-contracted to Plessey Communications of the UK.

Plessey Australia says it will be capable of mass producing the earth station by next year so that the system can be in place when the government promised.

Yesterday, the opposition spokesman on communications, Mr Bruce Loyd, called on the government to act quickly to choose a more technologically advanced system.

CSO: 5500/4300

RURAL TELEPHONE BUREAU ESTABLISHED IN GUANGDONG

Hong Kong TA KUNG PAO in Chinese 22 Jan 84 p 3

[Article by Tian Ming [3944 2494]: "Rural Telephone Bureau Established in Guangdong Province"]

[Text] The provincial government of Guangdong recently announced the establishment of a rural telephone bureau to be responsible for the construction, operation and management of rural telephone communications as well as to accelerate the construction of a rural telephone network in Guangdong.

This is the first provincial rural telephone bureau in China. It demonstrates the peculiarity of Guangdong as well as the new situation of the rural economy. There is an urgency to establish a modern "information society." It is indeed good news.

Guangdong is the home of most overseas Chinese. Relatives of overseas Chinese and returned overseas Chinese are all over the province. Most of them have been residing in rural areas for generations. They are closely related to overseas Chinese in the world. The establishment of a telephone communications network is urgently needed for the exchange of information in the overseas Chinese community throughout the world. However, the most important thing is that the rural economy, including the homeland of overseas Chinese, has made significant progress in recent years. Especially after implementing the special policy and flexible measures authorized by the central government, a brand new picture has emerged in foreign trade and cooperation in Guangdong. Economic and trade activities involving "imported capital, materials and technology and compensation" such as foreign capital joint ventures, the processing of imported raw materials and subsidized trading are conducted not only in the cities but also in the rural enterprises in areas where overseas Chinese originate. Many foreign trade businesses have been established in cities and towns such as Zhongshan, Foshan, Shunde, Taishan, Kaiping, Nanhai, Dongyuan and Shantou. These businesses are expected to grow especially because this policy will remain stable for the foreseeable future. Information exchange thus becomes more important. Therefore, it is urgent to establish a relatively modern telephone communications network.

The communications equipment in the rural areas of Guangdong, just as in the rest of the rural areas in China, has been in a primitive state over the past

30 years. As we enter the 80's, all the rural communes in China are basically equipped with telephones, according to statistics. However, only 60 percent of the production brigades have had telephones installed. This means that rural telephones can only reach communes or production brigades, which is already remarkable from the viewpoint of the development history of rural China.

However, in 1983, a new phenomenon was noticed in villages on both sides of the Chang Jiang. Especially in certain economically active villages, some rich individuals requested to have telephones installed at their expense. According to statistics taken at the end of last July, over 500 rural families already had telephones installed in China. Although the number is small, the significance is great. It shows that the farmers are engaging in various businesses and require fast and convenient communication tools to understand the market situation and to obtain economic information. Requests from farmers to install private telephones were received in Guangdong, Fujian, Zhejiang, Jiangsu, Shandong, Liaoning, Henan, Shanxi, Jiangxi and Beijing.

The situation in Guangdong is even more peculiar. Telephones were installed in over 40 rural families in Zhongshan County early this year. The telephones ring in 37 special trade and individual families in Guzhen Commune in the county. Farmer Chen Yutang [7115 3768 1016] and four other farmers operate a family sunflower leaf-processing plant using their spare labor from contracting some responsibility fields. In order to do business out of town, he spent over 300 yuan to install his private telephone. There are more and more such rural families. The Guzhen Postal and Telecommunications Bureau installed a large telephone exchange to expand temporarily the service to 400 lines. At the Denglou Brigade in a commune in Dianbai County in western Guangdong, the farmers are farming as well as fishing. At least 50 families have an annual income in excess of 10,000 yuan, and 13 families are applying for telephones.

The Postal and Telecommunications Bureau of Guangdong began to take special measures since earlier last year to meet this rural economic development. Special considerations are given to rural applicants. The installation and monthly charges are 30 to 50 percent less than those for city users. Now, the rural telephone bureau is established. Although it is still too early to expand telephone installation in rural areas in the province, however, a journey of a thousand miles begins with the first step. Plans have been drawn up to establish a rural telephone network, which is one step ahead of the rest of the nation.

12553

CSO: 5500/4170

PROGRESS IN OPTICAL COMMUNICATIONS IN SHANGHAI REPORTED

Beijing RENMIN RIBAO in Chinese 31 Aug 84 p 3

[Article by Chen Maodi [7115 3029 1717] and Lu Guoyan [7120 0948 0337]:  
"Shanghai Achieves Rapid Progress in Optical Communications Technology"]

[Text] In order to modernize communications in the city, the Shanghai Scientific Commission organized 40 units since 1978 to tackle the problem of optical fiber communications technology. Important progress has been made over the past 5 years. More than 70 items in materials, optical fibers, optical cables, optical devices and terminals and systems have passed scientific research and production evaluations. Fifteen of them received major scientific achievement awards in Shanghai. Optical fibers, cables and devices have already been tried out in many units in Shanghai and throughout the nation.

A new series of measures has been taken by Shanghai in tackling the optical fiber communications technology, which serves as a beneficial experience in tackling key scientific research programs cooperatively:

I. Looking at Long-term Development and Starting With Current Need

Optical communications is a new technology developed in the 1970's. Its prospects are very bright. However, the first step will affect the entire campaign. The Shanghai Scientific Commission, after a great deal of surveying by experts, realized that the relay lines between the local telephone bureaus in Shanghai were near saturation. The local telephone service was facing a shortage in which "no new lines could be installed and telephones were always busy." It was unable to meet the economic growth in Shanghai and the demands of the people. One of the special features of optical fiber telephone communications is its large capacity. In addition, it has the advantage of resistance against electromagnetic interference, durability against radiation, high security and conservation of non-ferrous metals. Therefore, the Shanghai Scientific Commission decided that the major target in developing optical communications should be focused on the local telephone communications system. The local telephone system had to be modernized step by step. In the meantime, the entire optical fiber communications industry could be established based on a breakthrough in this technology.

Our experience in the past 5 years proved that this approach was correct. The first experimental local telephone optical communications line in China, 1.8 km in length, was installed in April 1979. It is still in use to date. The switching rate has been stabilized at approximately 98.5 percent. It serves as the foundation for future production and longer-range experiments.

## II. Organizing Local Strength To Ensure National Focal Point

Optical communications is one of the key scientific research projects in China. The Ministry of Post and Telecommunications, Chinese Academy of Sciences and Ministry of Electronic Industry are primarily in charge. The Shanghai Scientific Commission organized the local research resources and units under the jurisdiction of these three organizations to launch a multi-level, large-scale collaborative effort which broke the traditional boundaries. Thus, not only were the research tasks assigned by the central government completed ahead of schedule, but also the telecommunications system in Shanghai was technologically reformed.

## III. Depending on Experts To Lead Specialized Construction

Shanghai Scientific Commission retained a number of experts to serve as technical consultants to various special fields. They were requested to determine the objectives and procedures. Some tasks were led by experts and some were guided by experts. Shanghai Scientific Commission also paid a lot of attention to building up a special field team. In the process of tackling this problem, a team was indeed built. Over the past 5 years, an optical communications team of over 200 people has been formed in Shanghai. They wrote more than 200 academic papers on optical communications technology. Some were published in relevant journals and magazines and received good reviews all over the world.

In order to accelerate the progress, the Shanghai Scientific Commission recently made new arrangements for the work in the optical communications technology program for the next few years.

12553

CSO: 5500/4170

TELEVISION INDUSTRY MAKES RAPID PROGRESS

OW171151 Beijing XINHUA Domestic Service in China e 0230 GMT 14 Sep 84

[By correspondent Chen Jinyu]

[Excerpts] Beijing, 14 Sep (XINHUA)--China's television industry has made rapid progress since the 3d Plenary Session of the 11th CPC Central Committee. At present the country is capable of producing an average of more than 20,000 television sets a day.

Since the 3d Plenary Session of the 11th CPC Central Committee, the Ministry of Electronics Industry has earnestly implemented the guideline and policy of the party Central Committee and promoted the development of the television industry. During the 5-year period from 1979 to 1983, it turned out 20.39 million sets of black-and-white television sets, an increase of 38 percent over the total number of television sets produced in the past two decades between 1959 and 1978. The production of color television sets has also developed from scratch. Over 47,800 color television sets have been turned out in nearly 5 years.

As a result of the rapid increase of the number of television sets produced and the improvement of the people's living standards, more and more people in rural and urban areas of the country own television sets. In 1977, there was an average of 3 television sets for every 10,000 people; in 1980, an average of 90 television sets for every 10,000 people. Now, there is an average of 200 television sets for every 10,000 people in the rural areas, while more than 70 percent of the families in the cities own television sets.

At present China's television industry is vigorously developing new varieties, while continuously raising output and improving quality. While incessantly increasing the variety of monochrome and color television sets, the Ministry of Electronics Industry is currently developing projection color television, flat-faced television, multiple image television, and three-dimensional color television.

CSO: 5500/4161

BRIEFS

NATIONAL, REGIONAL BROADCASTING MEETINGS--A conference on radio and television cooperation between the southwest and northwest regions and a conference of a number of provinces and autonomous regions on cooperation in having broadcasting serve the peasants were held in Xian from 11 to 16 September. In accordance with practice in radio and television work, the meetings studied questions of how to do a good job in reform, boldly create new things, and further create a new situation in radio and television work. Comrades from radio and television departments and stations of 18 provinces, cities and autonomous regions including Gansu, Ningxia, Qinghai, Xinjiang, Yunnan, Guizhou, Sichuan, Xizang and Chongqing, exchanged experiences in promoting reforms, running programs for rural areas, improving service quality and perfecting service measures and so on. During discussions, the participants felt: To further create a new situation in broadcasting work, it is essential to continue to boldly carry out reforms and create new things, breakthrough outdated trappings and conventions, and suite the new situation of the four modernizations. We must improve and develop our radio and television work in the course of reforms. [Text] [HK180137 Xian Shaanxi Provincial Service in Mandarin 1130 GMT 17 Sep 84]

FACSIMILE TRANSMISSION SERVICE--Beijing, 24 Aug (XINHUA)--Commencing 1 September, China's Ministry of Posts and Telecommunications will expand the fast facsimile transmission service to enable customers to communicate directly with people in foreign countries. A customer with fast facsimile transmission equipment in his office will be able to dispatch, or receive, facsimile messages to and from those in foreign countries with the same type of equipment at their end. The equipment, known as long-distance duplicator, can transmit a message, written on a piece of sextodecimo-sized paper, in less than a minute, and the print out at the other end is very clear. Fees for using this fast facsimile transmission service are the same as for the international telephone service--about 4 to 12 yuan per minute, according to distance. [Summary] [OW200427 Beijing XINHUA Domestic Service in Chinese 0821 GMT 24 Aug 84]

CSO: 5500/4161

## BRIEFS

NORTHERN TELECOM-SOUTH KOREA CONTRACT--On 2 August in Toronto, the Canadian company Northern Telecom announced that it had signed a fiber-optics technology transfer agreement with the South Korean company Daewoo Telecom. Under this agreement, Daewoo Telecom will manufacture in South Korea fiber optics transmission systems designed by Northern Telecom. Under another agreement, signed in 1982, the South Korean company was already manufacturing a private digital-telephone system developed by the Canadian company. Norther Telecom is the second largest designer and manufacturer of telecommunications equipment in North America. [Text] [Paris AFP SCIENCES in French 9 Aug 84 p 39] 9294

CANADIAN INFORMATION TECHNOLOGY FUNDING--On 28 August in Ottawa, the Canadian minister of communications, Mr Ed Lumley, announced the creation of a fund of aid to international collaboration in the sector of research on the new information technologies. The fund, to which Can\$ 1 million will be allocated each year, will finance the participation of Canadian organizations to international projects involving exchanges of scientists and knowledge in the field of information. [Text] [Paris AFP SCIENCES in French 30 Aug 84 p 9] 9294

CSO:5500/2782

YUGOSLAVIA

BRIEFS

GUINEA-BISSAU NEWS AGENCY DEAL--Belgrade, September 26 (TANJUG)--The news agency of Guinea-Bissau ANG and the Yugoslav news agency TANJUG signed their first contract on cooperation and exchange of news and information in Belgrade today. The contract promotes cooperation between the two news agencies within the pool of non-aligned news agencies, working continuously to expand the exchange of information and improve the quality of the pool service, and placing each other's news in media in the two countries. [Excerpt] [Belgrade TANJUG in English 1316 GMT 26 Sep 84 LD]

CSO: 5500/3001

INTER-AMERICAN AFFAIRS

ASETA DIRECTORS HOLD TELECOMMUNICATIONS MEETING

PA030225 Bogota Domestic Service in Spanish 1730 GMT 1 Oct 84

[Press Secretariat of the National Telecommunications Enterprises report]

[Text] Bogota -- The 16th meeting of the board of directors of the Association of State Telecommunications Enterprises of the Andean subregional agreement, Association of Andean State Telecommunications Enterprises, [ASETA] whose meeting ended last night in Bogota, decided to recommend to the ministers of communications and transportation of Colombia, Venezuela, Ecuador, Peru, and Bolivia, who will meet in November in Bogota, that they continue studying the launching of their own telecommunications satellite in the 1990's.

The board decided to initiate activities geared toward establishing the joint leasing of Intelsat facilities for television and telephone transmissions that will be developed in three phases.

The first phase will study Colombia, Venezuela, and Peru sharing a 72 MHz Intelsat relay station for transmission of national television programs. In the second phase the commitment would be extended to telephone services, and in the third all of the services would be extended to the five countries.

To initiate the joint leasing activity, a meeting will be held by operations representatives of the five countries in Quito in the second week of October. These technicians will establish a transmission plan and inform Intelsat of their decision. They will also request from Intelsat a 72 MHz repeater to carry out the tests necessary for the plan stated. When the tests have been analyzed and if it is decided that it is technically feasible for the three television stations to share a relay station with the three relay station, [word indistinct] in Venezuela, (INTEL) in Peru, and Telecom in Colombia, the formal request would be made to Intelsat to establish the joint leasing of that part of the satellite by the three countries, so that in the 1990's the launching of the Andean Group satellite called Condor will be possible.

The ASETA board stressed to the communications and transportation ministers the advisability of establishing three orbital positions for the Andean satellite system; two over a segment of the equator and one over a segment of the Colombian geostationary orbit. A group of experts from the five ASETA countries will prepare the documents necessary for the International Telecommunications Union, ITU.

The ASETA board of directors also recommended that necessary measures be adopted to act jointly at the upcoming worldwide administrative conference for the planning of special services in the geostationary orbit, which will be held a year from now in Geneva and which will undoubtedly be one of the most important technical conferences in the history of worldwide telecommunications.

In one of its most important decisions, the 16th meeting of the ASETA board of directors decided to suggest at the worldwide administrative conference the acceptance of [word indistinct] countries for the establishment of interregional television through the microwave network that currently links the five countries from Bolivia to Venezuela and which is one of ASETA's most important achievements since its inception.

Finally, the ASETA board of directors decided to continue activities necessary to allow the utilization of the ASETA infrastructure in Quito, with a view to the establishment of the Andean Telenews Network, and the continuation of PAFET, Andean Project for the Manufacture of Telecommunications Equipment [Proyecto Andino de Fabricacion de Equipo de Telecomunicaciones] programs which will allow the production of telecommunications equipment at a time when these countries have the technical and industrial ability to supply the regional market with this equipment.

(Jaime Aguilera Blanco), ASETA secretary general, (German Gonzalez Gonzano), president of the Telecom board of directors in Colombia, and the presidents or managers of telecommunications firms in Venezuela, Ecuador, Peru, and Bolivia who attended the 16th ASETA board of directors meeting expressed satisfaction at the results of the talks they held for 3 days in the Cauca Room of the Bogota Hilton. The decisions adopted will allow for considerable development of telecommunications in the five countries.

CSO: 5500/2001

NEEDS, DEFICIENCIES IN TELEPHONE SERVICES NOTED

Buenos Aires LA VOZ in Spanish 1 Sep 84 p 11

[Text] The secretary of communications, Humberto Rafael Ciancaglini, has called attention to the need to obtain financial contributions for the purpose of expanding telephone services and he estimated the number of installations that must be contemplated in order to implement solutions that have been demanded for some time at 200,000 lines per year.

The national official took his place on the monthly rostrum set up by the Argentine Engineering Center in the Argentine Construction Chamber, where he stressed that if the participation of the sector in the sphere of national development in 1985 is regarded in its "proper magnitude," there would be contributions from the treasury to handle the most immediate needs.

He pointed out that for more than 35 years it has been impossible to satisfy the demands for telephone service in the country, a situation that "has become more acute in recent decades because the industrial development of the nation has created an ever-increasing demand for more extensive and more efficient services."

The secretary said that "present needs for telephone service can be estimated at a figure equivalent to 50 percent of the equipment installed which, moreover, does not provide service that is sufficiently reliable" and amounted to a total of 2.6 million installed lines.

He admitted as positive aspects of ENTEL [National Telecommunications Enterprise] the fact that during the last five years it has incorporated the microwave network, the Buenos Aires digital belt and the ARPAC [Association of Argentine Private Radio Broadcasters] network, to which should be added the services of INTELSAT in the international area at the end of the 60's.

The secretary acknowledged the minor role played by "engineering entities and national industry in the development of microwave equipment and the constant tendency to purchase ready-made high tech equipment."

In evaluating the "inherited" situation, Ciancaglini made reference to the collection of tolls that has been deferred for more than a year, the deficiency of outside installations, the excess of personnel in proportion to the lines installed and work contracts that have been agreed upon and have even been signed, which involve outlays as much as "three times" higher than the budget estimates.

The secretary stressed that the situation can be remedied by the recovery of the toll charge in force, the progressive incorporation of the "differentials" through advance billing and immediate banking of the proceeds.

Similarly, he cited the reactivation of lines by repairing the outside installations and the reassignment of personnel in unproductive sectors to others that require a larger number of workers.

He included in this category studies and projects for the development of low capacity exchanges through the agency of the National Laboratory (LANTEL) and of automatic substations to implement a virtual increase in the number of lines in houses of the administrative districts.

Then Ciancanigli said: "Future projects involving telephone services will have to embrace periods of 20 years in their programming, not only because of the negative aspect of the statistics for the last quarter of a century, but also because, in the matter of development, that is the ideal time span for the structuring and concrete implementation of a coherent policy of expansion."

He then stressed that the increase in demand makes it possible to forecast that the system will grow to 5 million lines by 1989 and 10 million by the year 2005, explaining that the present demand is for 4 million, only two-thirds of which are satisfied.

The secretary indicated that to obtain the margins of installations desired, it is necessary to achieve an average of 200,000 lines per year, which is not difficult to do in the country, from the industrial standpoint.

Ciancanigli maintained that "a balanced telephone system is a profitable enterprise" and that "the steps to recover toll charges and fees will make it possible to achieve a balance between expenditure and collections."

He expressed the opinion that such a procedure will also make it eventually possible "practically to eliminate the deficiency in service, although the existing telephone equipment will not produce resources sufficient to finance the proposed program of expansion."

The secretary then emphasized that the budgetary investment allotment contributed by the national treasury for this business year "is very small" and that if the matter is given due consideration "it might be possible to secure an increase that would enable us to deal with the most immediate needs."

In this connection, he stated that this possibility "would not exclude" arranging for additional channels of financial collaboration, the organization of cooperatives," bank loans, the supplying of equipment on a deferred payment basis, etc.

In closing, Ciancanigli said that the cost per line in electrotechnical exchanges "is appreciably less than that for the electromechanical variety" and that "only this type of equipment will be considered in the official plans for 1989."

8089

CSO: 5500/2076

# MINISTER AIRS GOVERNMENT VIEWS ON TELECOMMUNICATIONS

Hamilton THE WORKERS VOICE in English 6 & 20 Jul 84

[6 Jul 84 pp 3, 4]

[Text] Many members of the Bermuda Industrial Union, who work in the various areas of communications in Bermuda today, are becoming increasingly worried about what the future holds for them.

They are concerned that the decision of Bermuda's political and economical leaders to make this Island an international data bank, with the introduction of a highly sophisticated telecommunications system, will seriously threaten their present jobs.

In an effort to get some information on the present and future plans of Government and the business sector, Workers Voice spoke with Dr. John Stubbs, government Minister of Business and Technology.

Following is a text of that interview:

W.V.: Dr. Stubbs, many people are wanting to know what is going to happen to the present system of free television in Bermuda.

STUBBS: I think the future for over-the-air broadcasts paid for by advertising, so-called "free" television is in very grave doubt. What Government has wanted to avoid is a multiplicity of terrestrial delivery systems, and so we sought to bring all these people under one corporate umbrella (Infonet Co.).

But the idea of Infonet, at stage one, which they're at now, is to take a sophisticated study of our present and future domestic and international future telecommunications needs. Hopefully, at the end of the day, we shall have a clear-cut vision of where Bermuda's going, how it's going to be financed and how quickly we're going to get there.

## Law Being Re-written

W.V.: Some American experts in the telecommunications field visited here recently and met with members of the press. It was the stated opinion of those experts that Bermuda would have to move rapidly into the new field of

telecommunications, if we want to get ahead of other jurisdictions which are eager to compete. Is our Government moving rapidly ahead.

STUBBS: Oh yes indeed! The spectre of being overtaken by, well, to put it bluntly, competitors in offshore business jurisdictions has been raised. But I think the situation is not as urgent as some would have us believe.

W.V: Is it true that no signal will be allowed in Bermuda, until the Bermuda Government has acquired all signals throughout the Island?

STUBBS: No, the Telecommunications Act which we are in the process of re-writing, will be the legal basis for Government's regulation of telecommunications. There is a large body of feeling that suggests that over-the-air telecommunications obviously has to be controlled; otherwise you get interference in the radio frequencies.

Where there is a disagreement is the extent to which Government regulations should apply, if at all, to terrestrial wire communications. I'm talking about land and submarine links (like Cable and Wireless), by wire or by fibre optics or by co-axial cable.

W.V: In the news recently, there was an announcement that Government had signed an agreement with Cable and Wireless....

STUBBS: A heads of agreement.

W.V: What's that?

STUBBS: It's called a "heads of agreement", in that it sets out broad terms of our mutually agreed agreement. The details will have to be worked out by the technocrats.

#### MCI/Cable & Wireless Link

W.V.: We were told that officials of the American based multinational telecommunication firm, MCI visited Bermuda recently and consulted with Government and business officials. Is there the likelihood of MCI getting a foothold in Bermuda?

STUBBS: Well indeed, I am led to believe that they are actively exploring the possibility of providing Bermuda with one of their new services. It's a form of electronic mail, and, as such, it would be in competition with Telex, with the ordinary mail and with the expanding courier services that we've seen here.

W.V: Could it ever be in competition with Cable and Wireless?

STUBBS: Yes, to some extent. To the extent that it has the potential of perhaps speeding the demise of Telex. Though I don't think the demise of Telex is right around the corner!

W.V: In that case, why is Government signing an agreement with Cable and Wireless when there's a possibility, down the road, that MCI could be taking over?

STUBBS: No, no. MCI never suggested that they wanted to take over. They made no hint that they would like to propose that they be an alternative to Cable and Wireless.

Let me back up a bit. I was fresh brand new in this job and we met with some seasoned telecommunications regulatory lawyers of the Federal Communications Commission in Washington D.C.

I mentioned the collusive relationship that international carriers seemed to have and this lawyer said, "Yes, they are nothing more nor less than a cartel", which, of course is a very perjorative word.

But when one thinks of the practicalities of the situation, so let's face it, their behaviour has GOT to be cartel-like.

#### International Control

For example, let us say you're in charge of Brazilian telephone and Brazilian International voice communications and I have some of the responsibilities for Argentina.

Brazilians don't want to just talk to Brazilians, they want to talk to the world. So we must build these networks of communication, which means that we must work out tariff treaties. And if the call is from Rio de Janeiro to Buenos Aires, how does that tariff get collected? How does it get divided between these two national telephone companies?

Now, MCI and ITT and, I suspect GTE Sprint (and there are other possibilities), their existing commercial relationships with Cable and Wireless internationally--around the world--are immense, compared to any commercial interests any one of these other competitors might have in Bermuda.

W.V: So MCI and Cable and Wireless are working together?

STUBBS: Oh yes. Around the world.

W.V: In light of the fact that we are still a colony, how much authority does the Bermuda Government have to make these arrangements? Or do they have to go through the United Kingdom?

SUTBBS: We do it direct, but the final international request is always made for us by the U.K. They have been completely open about allowing us to go and talk to whomever and work out whatever deal, and they'll OK it.

#### No Government Control

W.V: You, as a member of the Bermuda Government, are conducting all the negotiations at present?

STUBBS: Yes.

W.V: But Infonet is not Government. It is made up of a group of interested companies in the private sector. Are you working in conjunction with the representatives of Infonet? Are you keeping the people of Infonet informed as to your progress? And how is Infonet going to take over from Government? Will Government have the final say as to what type of telecommunications system we have in Bermuda?

STUBBS: I think that Government will merely be a party to the discussions and has an over-riding responsibility to promote, as it sees fit, the best public interest for Bermuda.

W.V: But who is going to have control?

STUBBS: I've explained why the nature of telecommunications is such that a sort of collusion, cooperation, collaboration. . . .

W.V: Yes, but you're talking about on the international. . . .

STUBBS: No. I'm talking about in domestic use. You see, in the United States, if you go to a city supplied by Continental Telephone, you expect to have the same facility. . . .

W.V: Yes, but Bermuda is not the United States. Now MCI has got into France, and in an article which you gave me to read it says, "The first major step is the abolition of the broadcasting monopoly, where the State monopoly of the distribution of programmes to stations that work for TV and other services, can now be invoked at the initiative of local government authority, which can take partners from private enterprises and have full control over services, subject to a number of reasonable restraints, such as prior authorisation for TV services and simple statements of intention for inter-action services." Now, does this Government intend to implement a similar type of arrangement with MCI, Infonet and Cable and Wireless?

STUBBS: No. That would not be our intent. Early on it was thought that perhaps Government should have an equity interest in Infonet. But this, I think, is counter-productive. We want to have the most collaborative, cooperative, stimulating relationship with Infonet and other bodies.

But if Government is going to see to the public interest, without any concerns about

its participation, it's a much clearer situation, if Government does not have an equity interest in the company.

W.V: In other words, Government will have no control over the activities of Infonet?

STUBBS: Well, "control" is the sort of word that conjures up a rather dictatorial. . .

W.V: Alright, we won't use the word "control". But, in other words, Infonet will have a free hand?

STUBBS: Yes. Under the Telecommunications Act.

#### WHAT ADVANTAGES TO WORKERS?

W.V: We have a very large number of Bermudian workers employed in the banks, the Post Office, BELCO, TELCO and in offices in the business sector. Will they all continue to be employed under the new system?

STUBBS: All of them will be advantaged by Bermuda having the most sophisticated telecommunications system, within reason.

W.V: How will they be advantaged?

STUBBS: By having improved information handling, it improves the productivity of the individuals you've mentioned in all these areas.

W.V: What about their jobs? How about postmen, for instance? If you're going to instal an electronic postal system, what happens to them?

STUBBS: What your question reflects dates back to the concerns of the Luddites. . . .

W.V: Yes. I know what you're going to say. Technology is rapidly advancing. But history shows that, when machines came in, there was never any previous attempt made by the owners to train the workers, or to educate the people. The machines were brought in and the workers were told "You're not needed any more!"

Our workers want to know exactly what their situation will be, when you bring in all this highly sophisticated technical equipment. Obviously, you're going to need a lot of technological experts, which you do not have in Bermuda at this time.

STUBBS: The advances in the technologies that are the engines of the information age will improve worker productivity. I think will enrich the job experience.

And it's absolutely inevitable that adult re-training and re-training and re-training will become the commonality of the adult work experience. There will be powerful commercial pressures to see that this comes about.

This is in the interests of those who manage the Telephone company. This is in the interests of those who manage the insurance companies, who manage the banks, to see that their staff are subjected – or “offered” is a better term (happily we live in a free society). That they're offered opportunity after opportunity for training and re-training and further training.

W.V: We have a lot of Bermudians in the work force, who have not had the opportunity for further education. They're going to be put out of work.

[20 Jul 84 pp 4, 6-7]

#### [Text] WHICH WAY BERMUDA?

W.V: So far, we have seen no evidence of the various managements involved with Inlon et, giving any indication to their workers as to the direction in which they are going. Neither have we seen those managements attempting to give their workers the necessary re training which you have said will be required.

STUBBS: Well, I don't think that's true. Earlier on in this Ministry, I was invited to tour the major facilities of the Telephone Company. And I can tell you I found it very heartening – particularly in visiting this very sophisticated switching establishment here in Paget – for me as a Bermudian, to see a tiny handful of Northern Telecom experts (who were here temporarily to see to the installation of the system and to the training of Bermudians to man the system) working cheek by-jowl in the most happy working relationship with Bermudians, Bermudians who were having their expertise extended.

W.V: I don't think any Bermudian workers have resented foreign experts who have come here to train them and to help them to extend their expertise. It's only when foreigners come here to train Bermudians and then stay on to do the job, that resentments occur.

But what most workers want to know, and

STUBBS: I think that's a speculative move. I definitely don't think that will happen. And if, as Government, we felt that there were major disruptive dislocations visited on ANY members of the work force – redundancies, unemployment etc., – we would have a collective responsibility to see that doesn't happen.

But I think the commercial realities, the technological developments and the commercial consequences are such that people that manage these various institutions will have an obvious interest in providing opportunities for re-training and educational opportunities.

That is such an obvious consequence that I'm quite certain that we're not going to be looking at, or these large numbers of unemployed.

especially those in the telecommunications field, is which way the Government and the private sector are going.

Some time ago, in an interview with Workers Voice, the then premier and finance minister, David Gibbons told us that his government would like to see Bermuda become the international data bank centre for the world. Is that still Government's intention?

STUBBS: Yes.

W.V: Which will mean what for the citizens of Bermuda?

STUBBS: For the same reasons that the international and exempted companies and international insurance companies find Bermuda a favourable jurisdiction from which to do business, and given massive expansion of capacity in telecommunications into and out of Bermuda, given enormous improvements in domestic telecommunications capacity and quality and reliability, Bermuda becomes more and more attractive to international companies, as a safe and secure place to store information. Which can be added to, and subtracted from and manipulated from afar.

And this will, I think, open up a whole new range of information handling jobs for Bermudians, of all degrees of sophistication. Some of them will require a great degree of exper-

tise and others will be less demanding.

W.V: But Bermudians are not being told NOW about all those wonderful opportunities. You say some jobs will require greater expertise. Surely the time is now for young Bermudians to be in the process of acquiring that expertise?

STUBBS: Well, our monitoring of attendance at the Bermuda College Extension programme tells us that Bermudians are getting the message of the importance of developing skills in the information age. Computing skills, telecommunications skills, these courses are in high demand at Bermuda College. Bermudians in large numbers are showing an interest.

W.V: Past experience has shown that Bermuda's rulers have always rushed into areas when they have seen the profits to be made. They rushed into the tourist industry and allowed large hotels to be built. Then there were not enough Bermudians to staff those hotels, so foreigners had to be brought in. Now, some of those hotels are finding it difficult to fill all their rooms.

Well back in 1970, the rulers knew that they were going into the international insurance and exempt company business in a big way. Instead of informing young Bermudians of the skills that would be needed for that business and encouraging them to acquire those skills, they were encouraging them to go to the Bermuda Hotel College, to learn how to be waiters and waitresses. Again, they had to bring in foreign "experts" to fill those jobs.

Today, the Government is doing nothing to inform the Bermudian workers of the direction in which it is going.

STUBBS: Oh, but we've said that on many occasions. We want Bermuda to be at the very forefront of technology and business development in the information age.

W.V: You still haven't said how this rapid advance in technology will affect our population. How will it affect the Bermudian?

STUBBS: It will affect the Bermudian by giving the Bermudian opportunities for job enrichment.

W.V: What do you mean by "job enrichment"?

STUBBS: Simply that the interest a Bermudian will have in his work, predictably five, ten or 15 years from now, the nature of the work will be, on average, more interesting than it is now. The productivity of the Bermudian workers will be on average, far greater than it is now. And this, after all, is the source of wealth. It's increasing productivity.

#### INFONET MONOPOLY?

W.V: Is Cablevision ready to produce subscription TV now?

STUBBS: To the best of my knowledge, not yet.

W.V: Gavin Wilson has said that he is ready.

STUBBS: He's said he's made the appropriate contractual relationships with supplies in Canada. The delivery system is not in place and, to the best of my knowledge, the financing of this venture has not been worked out in detail as yet.

Poor Gavin and Cablevision have been facing the tribulations generated by the improving technology. Gavin's not been looking at a still target. The target has been moving and that's been one of his principal difficulties.

W.V: With regard to the operations of the Bermuda Broadcasting company. With the advent of this highly sophisticated technology that is going to be introduced into Bermuda by Infonet, (in which the BBC has shares), will the type of operation which it runs now become defunct?

STUBBS: I think it will be modified. It'll be much more automated.

W.V: In other words, it will require far fewer workers to operate?

STUBBS: My guess is that it will require fewer workers -- yes.

W.V: Mainly technical workers?

STUBBS: No. I think the news gathering and news dissemination, the important cultural need of having Bermudian content in this area will require the employment of staff also.

W.V: Can Government get any guarantee from Infonet that Bermudian culture and the Bermudian content will be preserved?

STUBBS: I think that it's essential that we do that.

W.V: YOU think it's essential. But people don't always do what's considered essential by others.

If you have a consortium of companies that have a monopoly of the media, how can Government intervene. Government has been unable to intervene in the BBC dispute, because it is a private operation.

What guarantee does Government have that a similar situation to that which has occurred with the BBC doesn't occur in the future with Infonet?

STUBBS: The very nature of Infonet's enterprise is such that it is as unimaginable its turning off of services as it is to suggest that the telephone company tomorrow is going to "pull the plug".

Theoretically that could happen. But common sense and practicality suggest that it is most unlikely that there would be any circumstances in which that would happen.

W.V: So Government does not have any intention of having any financial involvement in this telecom system?

STUBBS: What Government does five or ten years from now, I think my crystal ball doesn't have the accuracy of forecasting, to suggest what, in fact, will happen.

But in my view (and this is, of course, a personal view; I've never put this formally to my Cabinet colleagues), in my view, it is to the disadvantage of the public interest for Government to take an equity position. Because it leaves Government therefore, unencumbered by equity interest in pursuing what it perceives as the public interest.

#### CONFLICT OF INTEREST

W.V: So you're saying that, if Government is not financially involved, it can enact legislation to control the actions of Infonet?

STUBBS: You're using that word "control" again! Government, I think therefore, has a more even-handed, clear-headed, unconfusing relationship with whoever is providing telecommunication services, to see that the public interest is best served. And not merely by legislation.

After all, it was Government's incentive, bringing the parties together and saying, "Now chaps, let's look at this whole ball of wax. Not from any narrow sectional inter-

ests. But let's look at it from the overall national interest. It was through Government's initiative that the parties (in Infonet) were drawn together.

W.V: What about members of Government, as individuals, having a financial involvement with Infonet, as a lot of them presently do?

STUBBS: Well, of course, this raises the subject and the spectre of conflict of interest. I've seen this work in Cabinet. If people are scrupulously forthright in declaring their interest and withdrawing their influence from areas of decision-making in Government that would have a direct impact on those interests. . .

W.V: Even if they ARE scrupulously honest. David Gibbons was scrupulously honest in declaring his resignation as director from the various businesses owned by his family. But he still receives his income from the activities of those businesses. So he cannot be considered as having no conflict of interest, so long as he is receiving financial benefits.

STUBBS: What you find is that those people who have no involvement (and we can even forget the extent of financial involvement), you show me somebody who has absolutely no conflict of interest, and I'll show you somebody that really has very little expertise or experience in the area under consideration.

In my experience that is true. And I think the modus operandi we have worked out in Bermuda, of having people declare their interests and yet then having the opportunity to provide input from their expertise, is a good one.

#### SOLUTIONS TO MANY PROBLEMS

The main concern of our workers is how is this going to affect the Bermudian way of life and whether Bermudians are technically prepared now to go rushing into this highly sophisticated "information age"?

STUBBS: Well, we certainly have our track shoes on. We're moving with lightning speed. But let me give you an example of job enrichment and the expansion of job opportunities.

It's of some concern that we have such a monumentally high proportion of working mothers. Now a lot of these working mothers are doing secretarial and accounting jobs.

W.V: Which are going to be a thing of the

past.

STUBBS: No. They're going to be expanded and enhanced by having these functions being performed much more efficiently. Take a secretary in a law office. In the old days, when minor amendments were made in a legal document, she had to re-type the whole darn thing. Nowadays, with word processing, and the ease with which information can be added to or subtracted from a document. That's a classic example of improved productivity. And that has got to redound to the worker's advantage.

Now, what a very sophisticated terrestrial telecommunications system will do, is allow

a lot of those working mothers to work at home. And to have much more flexible hours. And it will provide a wider range of services and more interesting functions than is provided in the work place, to which she has to travel on a daily basis during rush hours.

With more people doing sophisticated work at home, having instant and massive telecommunications access to their offices and to the world, it's going to have a favourable impact on our traffic problems.

W.V: Will it also increase leisure time? And will a working mother at home be paid a living wage?

STUBBS: Undoubtedly. We're going to be well above the living wage category, I can tell you. By improving productivity, by improving facility...

W.V: But surely, the facilities are being provided mainly to facilitate the operations of our exempt companies and insurance companies businesses?

STUBBS: And provide improved communications within schools; among schools; between our schoolchildren and schoolchildren in other countries.

W.V: What about the language barrier?

STUBBS: I went to Telecom 83 last year and I saw an incredibly sophisticated computer that was translating on the spot--Spanish into English and English into Spanish.

W.V: However, all this costs money.

STUBBS: It does, indeed.

W.V: And we'll be able to afford all this for our schoolchildren?

STUBBS: I think our economy has been buoyant and, if we take advantage of these rapidly advancing technologies, we will be able to afford it.

W.V: How far down the road do you see this wonderful technology being a fact of life in Bermuda?

STUBBS: Well, it won't come upon us like a tidal wave. It'll occur as an evolutionary, rather than as a revolutionary process. I comfortably predict that, by the end of this decade, the essential elements of this improved telecommunications and computing technology will be effectively in place in Bermuda.

STUBBS: You talk about people changing their jobs. A sophisticated terrestrial broad band telecommunications system is going to impact unfavourably upon the delivery of mail--no doubt about that. But, in an expanding economy, there will be a lot of opportunities that will be really far more attractive to those postmen than the work they're doing now.

W.V: Such as...

STUBBS: For instance, let's go beyond postmen, to meter readers. I can't think of anything more boring (sometimes it's a bit threatening, if you've got dogs etc.) than the job of reading meters. I comfortably predict the day when your meter is read at a distance by a sophisticated telecommunications system.

W.V: So what about the meter reader, under this new process?

STUBBS: The meter reader is going to be swept around in this process into other, I think, more rewarding, more remunerative job opportunities.

W.V: And the postmen?

STUBBS: And the postmen.

W.V: So you believe that, with the advent of this highly sophisticated system, Bermudians will no longer find it necessary to hold down two or three jobs? That there will be adequate employment for ALL Bermudians?

STUBBS: Yes, yes.

W.V: And it will not be necessary for mothers to go out to work?

STUBBS: I think that the need for jobs to provide what is perceived as an adequate income will rapidly diminish. That's certainly my hope; And I think, looking realistically at the impact of these emerging technologies, that is more than a fond hope that is, I think, a very substantially accurate prediction of what's going to happen.

W.V: You are obviously very enthusiastic about this whole system and are deeply involved with INFONET, to expedite the setting up of the system in Bermuda. Yet we read in the local newspaper that you have tendered your resignation from your ministerial post. Is it true, and if it is, why have you taken that action?

STUBBS: No. The premier accurately described that I asked to be replaced as a minister in Cabinet. I think the ministry's sufficiently important to Bermuda's future that we could do with a little extra manpower. And ideally, I would like to see an able colleague, who is as enthusiastic as I am, deal with the matters as they relate to the Cabinet, and the public.

But I'm quite happy, as indeed I've stated in writing to the premier, I'm quite happy to continue working as hard, if not harder, within the ministry.

But, for reasons of my professional practice, I would rather not have the additional burdens that extend beyond doing the job as minister, but that relate to being a member of Cabinet. I'd rather have those activities and those responsibilities removed for a time at least, so that I will have more time to devote to my professional practice, which I find I am even more wildly enthusiastic about than I am about my other activities.

CSO: 5540/015

# PRESIDENTIAL CONTENDERS SUPPORT MARKET RESERVE POLICY

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Sep 84 p 30

[Text] Brasilia--In testifying yesterday before the Joint Congressional Committee that is considering the government bill on national informatics policy, both Tancredo Neves, candidate of the Democratic Alliance, and Paulo Salim Maluf, of the PDS [Social Democratic Party] supported reservation of the sector's market, although in different ways. Tancredo believes that without such a reservation Brazilian society would remain under domination "with no foreseeable time limit," whereas Maluf favors the measure for a limited time, asserting that "the world has no boundaries and this industry will have to get along on its own in the future."

The candidate of the Democratic Alliance also affirmed his inclination to study the possibility of creating a ministry encompassing the field, as well as culture, science and technology, and condemned subordination of the sector to the National Security Council, suggesting another formula: informatics would be subordinated directly to the president of the republic and there would be a national information council, made up of representatives from the private area and the government, whose chairman would be appointed by the chief of state and ratified by the Senate. Along with this council there would be agencies to execute informatics policy. Maluf, on the other hand, advocated continuing the present system, in which the sector is subordinated directly to the president through the SEI [Special Secretariat of Informatics] and the National Security Council.

Tancredo Neves believes Congress should be responsible for drafting the national informatics plan. He stressed the importance of the deputies and senators not giving up this prerogative and emphasized that he does not favor the broad delegation of powers to the SEI contemplated in the government bill. But he felt that agency could be responsible for monitoring the policy.

He also disagreed with the definition of a national company given by the government proposal, pointing out that in a definition that left no room for doubt it should be made clear that Brazilian control must be exercised at three levels: Decision-making, technology and capital. He added that the 8 years stipulated for the reserved period should be viewed as a minimum time, suggesting that the performance of the sector would indicate whether or not a different solution was in order.

## Domination

In his first clearly nationalistic statement since his presidential campaign began, Tancredo Neves alluded to the second government of Getulio Vargas: "We had, in our past, instances of popular mobilization in support of the national economy, such as the 'the oil is ours' campaign. However, even without a country having its petroleum resources controlled by foreign companies, there could be a reversion to such a process of subjugation, as events have proven on so many occasions."

He then advocated restriction of the market, asserting: "But development of informatics technology, without democratic and national control, would permit a level of control over the life of society without any foreseeable time of restitution."

Tancredo Neves made his presentation in a little over 15 minutes and during the 2 and 1/2 hours that followed discussed the subject with deputies and senators. The first to question him was Senator Roberto Campos (PDS [Social Democratic Party] --MT [Mato Grosso]) and the candidate defended the SEI, maintaining that to deny its importance is to ignore the evidence, the facts, the statistics and the figures, as it has in fact collaborated in development of the sector. He said that the idea behind reservation of the market was support of domestic technology and mastery of mini- and microcomputers, a factor of national security.

He admitted that the restriction could retard technological development, but asserted that it was worth the risk because otherwise the country could never be independent. He rejected the idea of Roberto Campos that the nations adopting market restrictions were not progressing satisfactorily, stating that comparisons with the United States or with countries of Asia and the Far East are not useful for Brazil. Lastly, he felt there was room for joint enterprises in the sector, as long as the majority of the capital was in Brazilian hands, although noting that foreign companies haven't the slightest interest in such an arrangement.

## Incentives

Paulo Maluf felt that, being a new and extremely important industry, even in terms of national security, informatics should receive special treatment, in the form of fiscal and credit incentives, nonreimbursable funding for research on a large scale and a reserved market for a stipulated period. The PDS candidate cautioned, however, that this market reservation could not under any circumstances lead to a small group of privileged firms that would be the beneficiaries of the measure, which in that event would not benefit the nation, but rather "a small 'grupo cartorial.'"

Maluf pointed out that closing the technological gap that separates developed countries from the Third World would not be easy, "as research in the sector is conducted in the high-income countries." And he predicted that the difficulties would not be easily overcome, "as social, cultural, economic and political limitations tend to aggravate the relative deficiency of the poor countries in this field."

He admitted, however, that Brazil's scientific and technological development depends upon overcoming these challenges: "It will be virtually impossible for

countries such as Brazil to satisfy their aspirations for progress if they are content to make up for the lack of a necessary scientific base through mere importation, copying or adaptation of the technology conceived for application in a different socio-economic universe."

8834

CSO: 5500/2000

# LATEST ADVANCES IN TELECOMMUNICATIONS SECTOR DISCUSSED

Sao Paulo VEJA in Portuguese 19 Sep 84 pp 105-110

[Special section produced by EMBRATEL [Brazilian Telecommunications Company] suppliers COBRA [Brazilian Computers and Systems, Inc], E.E. Equipment, Elebra, Ericsson, Estacon, Ficap, Icatel, Induco, Nec, Nife, Olivetti, Prologica, Siteltra, and Toyama: "Telecommunications: Brazil Enters a New Era"]

[Text] PROPEME [Program for Small and Medium Companies], to help small and medium-sized companies to benefit from telecommunications, RENPAC [National Network of Commutation by Packages], a system of data commutation to permit integration of microcomputers in the informatics network, and Brasilsat, the program to launch a Brazilian communications satellite, are the final steps of Brazil's entrance into a new era, with the communications network growing, in recent year, 2.6 times and the cost of fees falling an average of about 10.5 percent annually for the final consumer.

Consumption of telecommunications services in Brazil offered by EMBRATEL grew approximately 2.6 times in recent years, while costs were reduced an average of 10.5 percent per year. This was due, according to EMBRATEL (Brazilian Telecommunications Company), to the substantial improvement in productivity gains, now estimated at an average of 2 percent annually over the last 5 years.

Helvecio Gilson, president of the company, considers this a very significant result, especially when one takes into account that the large U.S. companies generally record rates no better than this average.

EMBRATEL--like the other companies of the TELEBRAS [Brazilian Telecommunications, Inc] System--is responsible for installing, expanding and operating all the national and international telecommunications systems, composed of telephone, telegraph (including telex), television, coastal-station and data-communications networks. The company, a part of the TELEBRAS system, was founded in 1965 and in 1985 will complete 20 years of activity. During this period of time, it broadened its coverage throughout the nation and developed a number of new services entering the field of "teleinformatics," which have already been installed. Two of the most important of the new systems are to enter into operation during the next few months: The National Network of Commutation by Packages (RENPAC), sometime this year, and the Brazilian System of Telecommunications via Satellite (SBTS), early in 1985.

RENPAc is a data-communications network that interconnects data banks, telecommunications networks (telephone, telex, computerized terminals) for their transmission. It is called "teleinformatics," or "telematics," as it is better known. The Brazilian System for Telecommunications via Satellite, now in operation, will have two Brazilian satellites for domestic communication next year, called Brasilsat, which will permit total coverage of the national territory, with reduction of operating costs and independence from the Intelsat system, an international consortium for satellite telecommunications (of which Brazil is a part) whose channels have been leased by our country to meet our domestic needs.

This year funds of about 6 billion cruzeiros are earmarked for training EMBRATEL employees. The development of technology can be measured by the percentage of domestic components that comprise its systems, currently 97 percent.

Equilibrium in the balance of payments and combating inflation are also important concerns of EMBRATEL. In making contracts for foreign purchases, the Communications Ministry, as in the case of purchasing the domestic satellite, includes counterpart clauses; that is, it makes its payments in money, but by contract establishes with the supplier country a commitment to import Brazilian goods of an equal value. Internally, the concern has been to make up for the loss of financial revenue with the increase in productivity gains. During the last 5 years, taking into consideration an average inflation of 100 percent, EMBRATEL raised its rates only 75 percent.

In social terms, EMBRATEL has rendered services in the areas of education and health, both within the company and to the community.

In addition to the financial investments in manpower training, the company has a program for supporting Brazilian culture that has been in operation for 6 years, integrated by a series of courses in the human sciences (such as history of mankind, logic, philosophy, arts and creativity); for its management personnel there is a cultural program that sponsors lectures and expositions about the culture of telecommunications. A memorial center, open to the public, has compiled the history of communications and has stored in a computer 200 statements of persons who were living at the beginning of the nation's development of communications.

In the health sector, through agreements with the state secretariats, medical associations, research institutes (such as the Oswaldo Cruz Foundation) and others and involving its data-communications networks, such as the Cirandao ["ciranda" is a circle dance; "cirandao" is presumably simply a larger circle] service, EMBRATEL is promoting creation of data banks that will provide every type of information assistance to the medical community or to the interested public in general.

Several of the EMBRATEL services are also directed toward aiding the small and medium-sized business, such as the Executive-TV, the data-communications systems and, with launching of PROPEME next 25 September, a program to help the small and medium-sized businessman identify the best channels of communication appropriate to his needs.

In order to broaden the range of services rendered, EMBRATEL has established and planned a number of new undertakings both domestically and internationally. In

the international system, some highlights have been the recent installation of a system of maritime communications via satellite, INMARSAT [International Maritime Satellite Organization] later this year; installation of the second earth station for satellite communications, in Morungaba, Sao Paulo; installation of the System for Communicating Banking Data (Interbank), which will enable banking institutions in Brazil to exchange information with counterpart entities located abroad, through the worldwide SWIFT network; installation in the city of Sao Paulo of a new International Center for Transmission and Commutation, for data transmission.

#### The Man In Charge of Technological Resources

"The mission of EMBRATEL transcends the simple operation of telecommunications. Besides operating telecommunications it wants to help Brazil solve its problems." The assertion is that of the president of the company, Helvecio Gilson, according to whom a nation's progress can only be achieved with productivity "and productivity is a direct function of technology," which is the company's primary area of activity.

It is in this direction, he says, that the company's policy is oriented, as defined by some major items: combating inflation, equilibrium in the balance of payments, maintenance and expansion of the level of employment, education, health, paperwork reduction, energy savings, support for Brazilian culture, settlement of man on land and economic growth.

Within the company's internal policy, Helvecio Gilson emphasizes concern for professional training. "Our greatest asset is our manpower," he says, "because a good professional reaches his maturity more or less at 30 years of age, whereas equipment can be put into operation within 3 or 4 years." According to him, the current speed of technological development makes man's knowledge depreciate at a rate of 20 percent annually. This thus requires constant reeducation of the professional. Based upon this parameter, he asserts, EMBRATEL invests 20 percent of the time of each higher-level professional (who now represent about 25 percent of all employees) in training and updating. In this way, at the end of each 5 years the professional will have spent the equivalent of 1 year in advanced training.

Moreover, training a cohesive and high-level team leads to concern about its maintenance, so that it is also a company policy to maintain the level of employment. "We do not dismiss workers except for rare occasions," asserts Gilson. "It is a question of social justice. In the last 5 years the personnel roster has increased 20 percent. We therefore have a policy of employing persons and never laying them off, although always maintaining the company's productivity." Beyond this, he mentions what he calls the "well-developed sense of Brazilianism" of his team, which is to say "very great attention to what is Brazilian." In this area, scientific and technological development have been fed through requiring exhaustive documentation about imported equipment, in order to foster absorption of technology; establishment of its own development laboratories; training of professionals abroad; etc. This strategy is reinforced by assistance to domestic industry. "From the beginning, EMBRATEL has tried to stimulate the domestic telecommunications industry, preferring whenever possible, and without compromising quality, domestic material. EMBRATEL devotes special attention to import contracts, in

reference to equilibrium in the balance of payments. According to Helvecio Gilson, it is a company rule to establish counterpart clauses in its importation contracts, through which the exporting countries promise to purchase Brazilian goods of an amount equivalent to what EMBRATEL pays for purchasing the goods or services.

Domestically, EMBRATEL's attention is directed toward combating inflation, through maintaining lower rates.

Other forms of rendering service are also characteristic of EMBRATEL's support of the national community. Helvecio points out creation of data banks and implementation of data-communication systems such as RENPAC and Transdata, as well as projects such as Ciranda and Cirandao, through which users of computer terminals are forming the nation's first informatics community. Using its computers, the company is forming data banks that include information referring to various areas of interest and which are fed by various institutions, such as the Oswaldo Cruz Foundation in the field of medicine and health and the Brazilian Institute of Geography and Statistics (IBGE) in reference to more diverse statistical information of a social and economic nature. Such information will be placed at the disposal of the user through transmission systems that can use the telephone system, telex or even computer terminals.

Such data-communication systems, notably the National Network of Commutation by Packages, according to Helvecio Gilson, will also provide considerable aid to small and medium-sized companies, which represent the great majority of domestic firms. Through RENPAC, data-communication rates will be substantially reduced, explains Gilson, because it is a system of commutation of packages.

PROPEME will also have great significance, as it is specifically intended to guide the small and medium-sized businessman in properly using telecommunications networks. EMBRATEL technicians will explain the functioning of each system and will aid in selecting the channel that is most suitable and at the lowest cost. "The means of communication, properly used, may greatly assist improvement of their productivity. We are going to teach how and when to use a telephone, a telex, etc. This not only makes the company's activities more flexible, but reduces its costs, eliminating unnecessary travel."

Another ramification of the services rendered by EMBRATEL, according to Gilson, is the contribution to paperwork reduction. The data-transmission systems will help take the paperwork out of communications, in that to access a computer information must be furnished in such a way as to conform to the programs. In this way a standardization is obtained in the transmission of information that substantially reduces the volume of paper normally used. Teletransmission of data economizes transport and, consequently, fuel; transmission of TV signals via satellite eliminates circulation of video tapes; communications by telex reduce the time lost in unnecessarily long telephone conversations, and so on.

The president of EMBRATEL further points out aspects of internal administration that have streamlined the company's performance and contributed to cost reduction. In the energy sector, alternative sources have been used to reduce costs. Today, nearly all the company's fleet has been transformed for use of alcohol; 98 percent of the microwave network now uses electrical energy, which practically eliminates

the use of generators that burn fuel; tests are being conducted for use of solar cells and for use of eolian energy (energy from wind) in propitious places. Moreover, a generator that can use any type of fuel has been ordered from CTA [Aerospace Technology Center].

#### Brasilsat, Conquest of Brazilian Space

After the beginning of next year, the Brazilian System for Telecommunications via Satellite will have its own place in space, with the February launching of the Brazilian satellite Brasilsat 1 and the August launching of Brasilsat 2, both built by the Spar Aerospace Company of Canada and placed in orbit by the Arianespace firm of France.

Brazil is currently using channels (transponders) leased from the Intelsat system--an international consortium of telecommunications via satellite, of which it is one of the 10 largest stockholders--to achieve domestic communication with regions of the national territory of difficult access where the microwave network--the usual method of telecommunications--becomes very expensive due to the distances to be covered or the difficulties of construction and maintenance. This procedure, however, is not totally satisfactory in that the Intelsat system is directed mainly at international communications. Moreover, the cost of leasing is high and the number of channels available is limited, as at any moment they may be requisitioned to meet the needs of international communications, which would interrupt domestic communications, with harm to the community.

So this was one of the main reasons that led the Brazilian Government to acquire its own space segment, thus guaranteeing meeting the needs of the nation's communications.

Another factor that influenced Brazil's decision to have its own satellite for domestic communications was the competition for space in the geostationary orbit and for the frequency spectrum (that is, the space occupied by transmission waves from the satellites). Because of being a more rational means and capable of offering various telecommunications possibilities, use of their own satellites has been widely employed by countries of large territorial dimensions. These are geostationary satellites (such as the Brasilsats), that is, those that rotate with the earth in order always to be positioned above the same location on the earth. These satellites must remain at an average altitude of 36,000 kilometers from the earth's surface and keep a respectful distance between each other in order not to cause or suffer interference. The large number of satellites rotating in a geostationary orbit may, in the near future, cause serious problems of congestion.

The Brazilian System for Telecommunications via Satellite is composed of two main segments: space and earth. In the spacial segment are the satellites and the equipment and antennas that observe it and control it 24 hours a day. A part of this system is the Satellite System Operations Center (COSS) in Guaratiba, Rio de Janeiro, composed of the Space Segment Control Center and the Communications Control and Operations Center, besides the Telemetry, Tracking and Command Station. The earth segment now has 21 earth stations operating through use of the channels leased from the Intelsat system. Of these stations, 17 are located in the Amazon region. In addition to these there is the TV-SAT service, intended for

forming national television networks, made up of 49 stations for TV reception exclusively and belonging to privately-owned networks.

The basic purpose of Brasilsat is to furnish telephone, television, telex and data-communication services on a nationwide basis. Each of the two satellites is equipped with 24 radio channels, frequency in the bands of 6 gigahertz in the rising connection ["enlace de subida" in Portuguese] and 4 gigahertz in the falling connection, which permits 12,000 simultaneous telephone connections or transmission of 24 television programs. Its form is cylindrical, with a diameter of 2.16 meters and a height of 2.95 meters, weighing 1,140 kg at launch. In space, with the solar panels for attracting energy and the antennae open, its height increases to 7.09 meters and its weight falls to 671 kg, due to elimination and burning of the fuel used to put it in orbit.

#### Telematics: Key to Post-Industrial Society

In recent years the notion has spread that we are on the threshold of a new era, that of post-industrial society, or the "information society," in which teleinformatics, or "telematics," has a fundamental role. In this context, according to engineer Helvecio Gilson, president of EMBRATEL, the company has positioned itself, in the first place, as a supplier of the physical means needed for data transmission; in the second place, as an information agent, through the Data-Base Consulting Services.

Generally speaking, these services are divided into four segments: 1) information, or researching and preparation of data; 2) storage, which uses data processing to file the information; 3) telecommunications, which assures access to such files; and 4) utilization, which is access to the information on the basis of the terminal equipment (telephones, telex, computer terminals, videos and teleprinters).

EMBRATEL's first discussions with users in regard to a possible solicitation of data circuits occurred in the late 60's. With development of informatics technology and the growing interest in data communication, the company studied and installed the first teleinformatics service in 1980, Transdata, whose basic purpose is to transfer information from one point to one or more other points on a nationwide basis by means of circuits permanently connected and specifically configured for data communication.

Based upon its experience with Transdata, EMBRATEL developed a new service during the second half of this year: the Public Network for Data Communication by Commutation of Packages (RENPAQ). It is the most widely used technique for public data-communication networks and consists essentially of dividing the messages to be transmitted into standardized segments of a limited maximum size, called packages. Such a technique makes possible communication between different velocities and equipment and substantially reduces the cost of use, for two reasons: first, the user need not pay for a permanently connected circuit, as is the case of Transdata; second, the means are simultaneously shared by several users, through the technology of commutation by packages. This system is especially responsive to the needs of small and medium-sized businessmen, those in various liberal professions and the public in general.

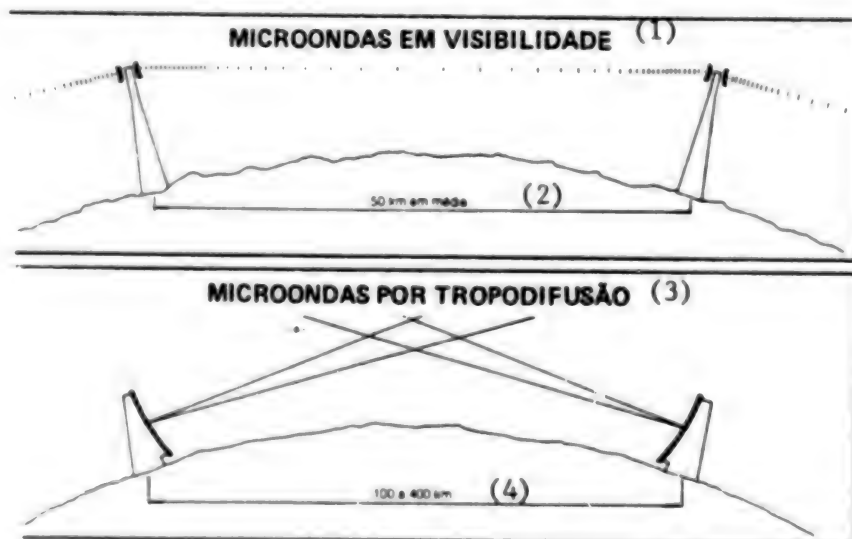
The RENPAC system will also be used by EMBRATEL for rendering services such as electronic funds transfer and Ciranda and Cirandao.

The Ciranda project was a pioneer experiment involving 2,200 EMBRATEL employees. Each of them had a microcomputer connected to a central computer. This gave these employees access to the main computer's data base and interconnection between one another.

On the basis of what was learned from the Ciranda project, EMBRATEL is installing the Cirandao, open to all users of microcomputers. Tests of utilization were begun in late July.

In a first phase, the Cirandao connections will be made through a common telephone network, being later plugged into the RENPAC package network. Coverage of the service is nationwide, with the intention of assisting the greatest number of persons possible, especially the localities with least access to information.

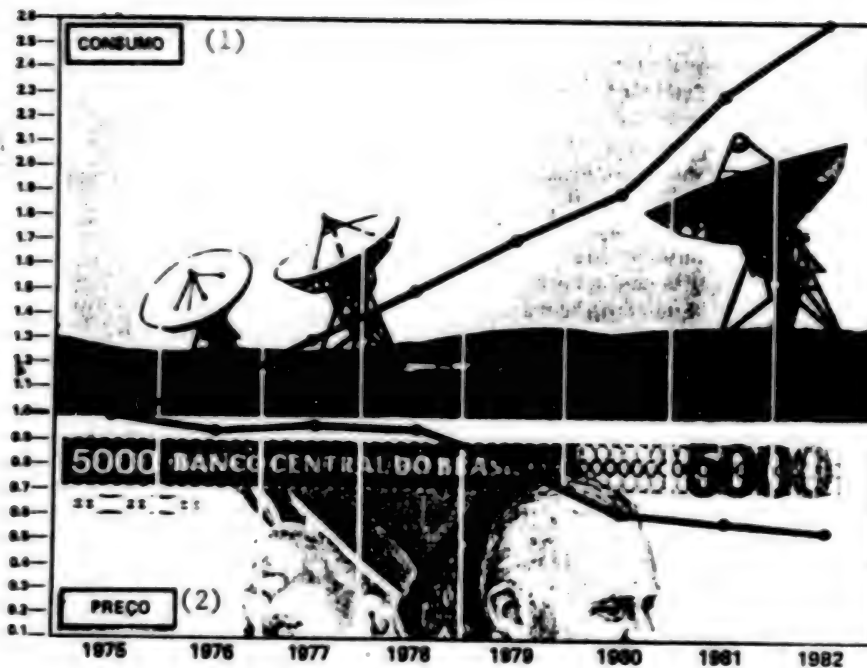
Generally speaking, the services to be offered by the Cirandao may be divided into three basic categories: A) services of a socio-cultural nature, with informative screens for public use; B) services of a socio-political nature, mainly programs of community administration and telemessages (communication of messages between users); and C) data banks with commercial information, fed by banks of private entities.



Key:

1. Microwaves in visibility
2. Average of 50 km
3. Microwaves by tropodifusion
4. 100 to 400 km

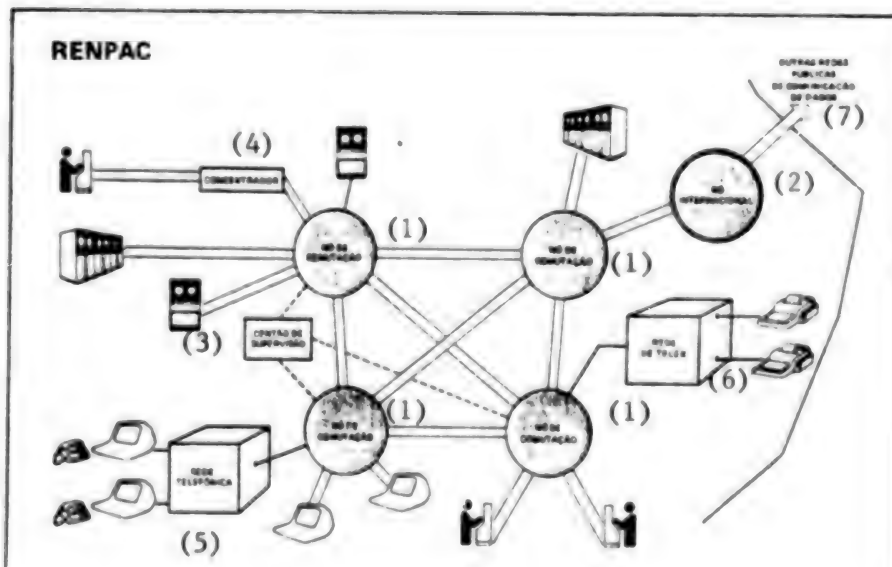
Traditional earth transmissions are made through microwave stations of two types: by visibility or by tropodifusion. The first enables a larger volume of traffic but requires a larger number of receiving antennae and suitable terrain. Tropodifusion, although more expensive, is used in places where physical obstacles impede visibility, such as hilly country or tall forests.



Key:

1. Consumption
2. Price

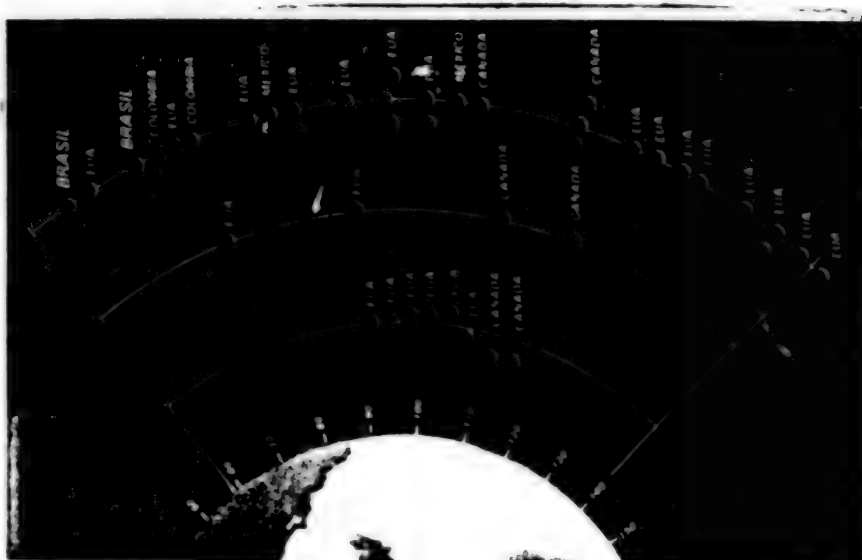
Since 1975 the price of the services rendered by EMBRATEL has fallen about 10.5 per cent per year, while consumption increased 2.6 times.



Key:

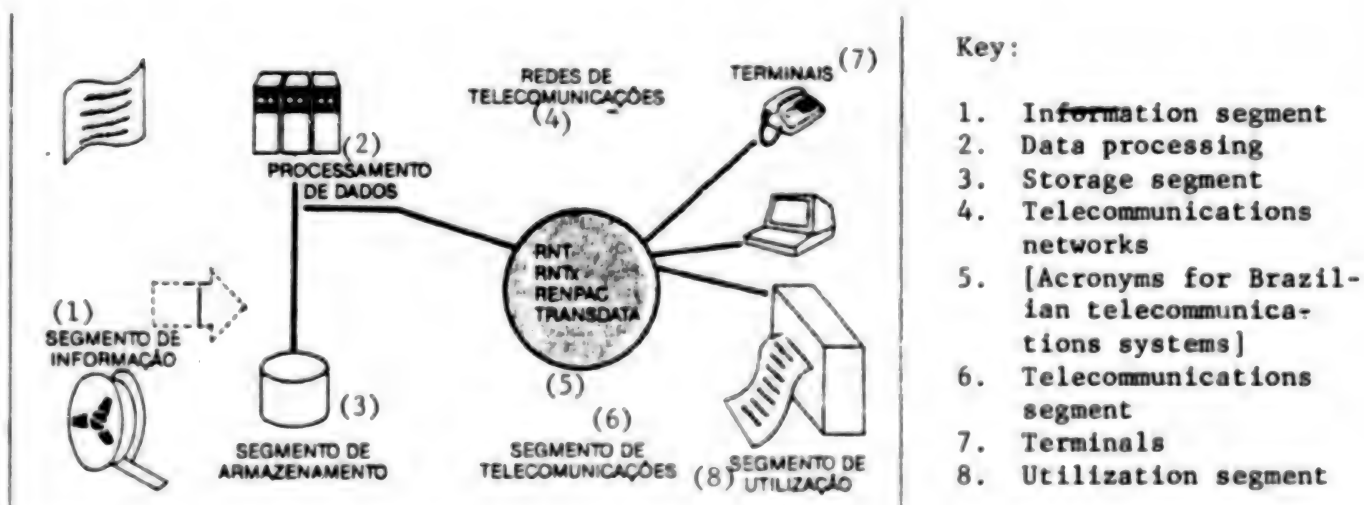
1. Commutation junction
2. International junction
3. Supervision center
4. Data collection
5. Telephone system
6. Telex network
7. Other public data-communications networks

Through the National Network of Commutation by Packages [RENPAK], the users can have access to various services and data banks at reduced costs. The information will be transmitted in standard sizes, called packages, and billed by volume. The system may be accessed through telephone, telex or computer terminals.



Key: E.U.A. = U.S.A.

Domestic-communication satellites of the geostationary type must occupy an orbit governed by the rotation of the earth and keep the proper distance between one another, to avoid interference. The orbital area of interest to Brazil is already occupied by several countries, for which reason immediate launching of the Brasilsat is important to assure Brazil's space in the orbit.



#### OPERATIONAL SYSTEM OF DATA-BASE CONSULTING:

The services of transmission and data-base consulting comprise four basic segments: 1) information, in which the messages are collected and prepared; 2) storage, in which the information is processed and stored in memories of the computers; 3) telecommunications, in which the messages are accessed; 4) utilization, that is, reception by the user of the requested information.

BRAZIL

BRIEFS

LAW TO PROTECT COMPUTER INDUSTRY--Brasilia, 4 Oct (AFP)--The Brazilian mini- and micro-computer industry will be protected for the next 8 years, in keeping with the computer law that Congress approved on Wednesday. To develop this rapidly expanding industry, Brazil has decided to block foreign participation in the computer-manufacturing industry, except in the case of large computers. In Brazil, there are currently 140 computer-manufacturing firms with a \$1.5-billion volume of business. [Text] [Paris AFP in Spanish 1824 GMT 4 Oct 84]

CSO: 5500/2003

ERSHAD TELLS GOVERNMENT POLICY ON PRESS FREEDOM

Dhaka THE BANGLADESH TIMES in English 6 Sep 84 pp 1, 8

[Text] The President and Chief Martial Law Administrator, Lt Gen H.M. Ershad, on Wednesday underlined the unbounded importance of "responsible journalism" in all ages and all countries and said that the journalists are, in fact, the conscience of the society, reports BSS.

He said the Government believed in freedom of the Press. But, he added, it was needless to say that impartiality and objectivity are the pre-requisites for freedom of journalism and the Press.

The President was speaking at the publication ceremony of the English newspaper, the Daily News at Sonargoan Hotel in Dhaka. The function was also addressed by the Editor of the daily, Mr Obaidul Huq and the Chairman of Fasal Printing and Publishing Company, Mr M. Haider Chowdhury.

Among others, the function was attended by the DCMLA Air Vice Marshal Sultan Mahmud, Ministers, diplomats, journalists and high civil and military officers.

President Ershad said as intolerance and imprudence can create unnecessary confusion and impair democratic values, similarly irresponsible presentation of news can undermine the freedom of the Press. The journalists who are engaged in this noble profession are required to firmly stick to this principle, he said, adding the impartiality and objectivity of journalism are much bigger than individuals, groups and opinions.

He said at the same time it is also a fact that the freedom of journalism does not mean distortion of information not to have the right to propagate aired. In fact, it is the responsibility of the Press to inspire the nation through projecting the good work and at the same time to speak about what is bad and harmful to the society and the country.

The President said the question of national independence, sovereignty and integrity is supreme and under no circumstances indulgence could be given to any attempts which tend to harm public interest or national causes.

Turning to the Government's sincere efforts for establishing democracy in the country, President Ershad said that journalists and intellectuals could contribute favourably to transition to democracy through peaceful elections. They could also inspire the people in this regard, he hoped.

He said in doing so the nation expected that the journalists would present the correct pictures of the happenings with neutrality and objectivity and rising above all emotions.

The President pointed out that the Government was keen to build up a strong and stable democratic infrastructure in the country and said with that end in view "we are making sincere effort to restore democracy and democratic values."

He expressed the hope that the journalists would make a correct evaluation of this sincere effort of the Government and help create a tradition of peace, discipline and democracy so that the democratic process could progress without any hinderance.

President Ershad said since accepting the responsibility of running the administration of the country, the Government had undertaken massive programmes of reforms and development. The flourishing of the Press and journalism got special importance within the purview of these reformative and development programmes, he added.

In this context, he listed some of the steps taken by the Government towards the promotion of journalism by his Government which included the second Wage Board Award and its implementation, realising the Government controlled newspapers, adopting expansion programme of the activities of Press Institute, construction of a new building of the National Press Club, constitution of the Press Commission and appropriate measures to implement its recommendations. These all speak of our sincerity for the proper development of journalism in the country, he pointed out.

President Ershad concluded with a call to all, including the journalists, for unitedly participating in the efforts for building an exploitation free and prosperous new Bangladesh so that the posterity could live a peaceful and happy life.

Speaking on the occasion, Mr Haider Chowdhury said that the Daily News had come out with the assurance of a clean journalism. We want to present to the country a newspaper which will be honest in providing correct information to the people, he added.

In his speech, Mr Obaidul Huq referred to the illuminating speech by President Ershad on journalism and the Press and said that it had inspired the hope that the Press in Bangladesh would be able to function as freely and responsibly as a really free and responsible Press should be.

CSO: 5550/0003

# CHITTAGONG MEETING APPEALS FOR BETTER RADIO STATION

Dhaka THE NEW NATION in English 23 Aug 84 p 8

[Text]

CHITTAGONG, Aug 22 : A meeting of citizens of Chittagong on Tuesday appealed to President Ershad to order for immediately installing at Chittagong radio station a one hundred kilowatt transmitter out of the two such transmitters recently imported and now lying at the Central Radio Stores at Pahartoli in Chittagong.

The meeting observed that while no radio station in Bangladesh has transmitter of less than 25 kilowatt the Chittagong radio station has been running with a ten kilowatt transmitter since liberation of Bangladesh.

The meeting held under the auspices of Chittagong Nagorik Committee was presided over by former MP and former President of Chittagong Chamber of Commerce and Industry A M Zahiruddin Khan and addressed by leading citizens.

The meeting resolved that if Chittagong radio station is not fitted with a hundred kilowatt transmitter by coming Victory Day on December 16 all citizens will be asked to boycott programmes of Chittagong radio station.

Condoling the deaths in

recent Biman air crash in Dhaka the meeting urged upon President Ershad to announce definite date for starting direct international flights between Chittagong and Middle East to ameliorate travel sufferings of thousands of wage earners originating from Chittagong.

The meeting in another resolution appreciated the efforts of Works Ministry and Chittagong Development Authority to revive the project for building a bridge over River Karnaphuli to connect Chittagong city with opposite bank and assured all support of citizens in these efforts.

The meeting urged the government not to shift the head office of Bangladesh Gasfield Company Limited from Chittagong unless and until the head office of Bangladesh Petroleum Corporation has been shifted from Dhaka to Chittagong as per govt. decision.

Those who addressed the meeting included Siddiqui, Moyeenul Alam, AK Azad, Niro Sabera Ismail, Kazi Khalilur Rahman, Sultan Mahmud, M A Musa, Abul Mansur Choudhury, Anwar Kamal, Prasanta Chandra Barua and others.

# SATELLITE-BASED REMOTE SENSING SYSTEM PLANNED

Calcutta THE TELEGRAPH in English 21 Aug 84 p 7

[Article by K.V. Venkatasubramanian]

[Text]

The Indian Space Research Organisation (ISRO) plans a national semi-operational/operational satellite-based remote sensing system in the eighties. Such a system will contribute to the generation of resource information in a host of areas like agriculture, forestry, geology and hydrology. It will serve to supplement and strengthen existing methods, toward realising an optimally efficient resource management system for the country.

The programme envisages the launching of a series of Indian remote sensing (IRS) satellites. The first such satellite IRS-1A, weighing 850 kg and with a design life of three years, is fast acquiring shape for launch in early 1986 by a Soviet vehicle. An agreement has been signed between ISRO and LICENSINTORG of the Soviet Union for launching the satellite into a 900-km polar sun-synchronous orbit. A semi-operational/operational satellite with three-axis stabilisation, it will carry solid state 'pushbroom' cameras in visible and near infrared bands for acquiring imagery of earth resources.

The primary objectives of this mission would be to establish and routinely operate ground-based systems for spacecraft control, data reception and recording, processing, generation enable user agencies to data products, analysis and archival; and to utilise this data with complementary data from other sources for survey and management of natural resources.

Work on the structural model is nearing completion and fabrication of the engineering model would commence soon after. Design reviews of the ground systems as also mission planning, analysis and operation, including the data products system, have been completed. Various engineering model sub-systems are under production. Several major sub-systems such as reaction control system, reaction wheels, inertial sensors, static horizon sensors, communication system and vital components of the camera are being indigenously developed.

The IRS-1 space segment primarily comprises the payload with its data handling system, and the satellite platform consisting of the mainframe sub-

systems. The spacecraft will carry two types of payloads—a camera providing spatial resolution of 73m with a swath of 150 km; and two cameras, each having 37m spatial resolution and a combined swath of 148 km.

Unlike the conventional multi-spectral scanners, the design of IRS cameras is based on the concept of 'pushbroom' scanning using linear imaging self-scanned sensors (LISS). In this mode of observation, each line of the image is electronically scanned by a linear array of detectors, located in the focal plane of the system, and the successive lines of the image are produced as a result of the satellite's movement. Charge-coupled devices (CCD) are used as detectors in IRS. This has the advantages of minimising exposure time for each ground point and ensuring excellent photogrammetric quality along the line scan axis. Each detector provides data in a single spectral band, and additional spectral bands are covered by multiple arrays with appropriate spectral separation systems. Imageries with low spatial resolution of 73 m (LISS-I) will enable con-

tinuity of data services to users accustomed to Landsat class of imagery. Whereas, the 37 m resolution is particularly designed to meet specific agricultural needs.

The spacecraft mainframe envisages a platform built around a central stiffened aluminium cylinder, which will bear the main load. Rectangular honeycomb panels surround this cylinder and provide the configuration, the shape of a parallelepiped with a payload module attached to the top. Deployable solar arrays, each consisting of three panels, are stored on either side of the satellite. All the sub-systems of the satellite and the payload data handling systems are mounted on four vertical honeycomb decks. Most of the reaction control elements including the four propellant tanks are located inside the central cylinder.

The spacecraft platform essentially consists of structure, thermal control systems, power system, telemetry, tracking and command system (TTC), as well as the attitude and orbit control system (AOCS).

*PTI Science Service*

CSO: 5550/0049

REPORT ON STATE OF TELECOM EQUIPMENT AIRED

New Delhi PATRIOT in English 28 Aug 84 p 2

[Text] India, at the present level of population, needs about 28 million telephones to provide adequate and satisfactory service to the people, reports UNI.

A study conducted by the Federation of Indian Chambers of Commerce and Industry on "Manufacture of telecommunications equipment," says the country today has approximately 3.2 million telephone lines. There is an additional requirement of about 25 million telephones based on the assumption that the density of telephones for satisfactory service should be 12 percent in urban and two percent in rural areas.

During the seventh Plan period, there would be a net gap of 1.27 million lines of local switching equipment and 105,000 lines of trunk automatic exchanges. Taking into account the slippages that would have occurred during the current Plan period, the net gap of switching equipment would be around nearly two million lines.

The study says at least two more electronic switching system factories would be needed during the seventh Plan period in addition to two units already set up in sixth Plan.

The FICCI study estimates that by end of seventh Plan period the demand of telephone instruments would fall short by 700,000.

The study notes that the investment on telecommunications in the seventh Plan would be of the order of Rs 12.5 crore nearly five times of what was spent during the sixth Plan.

The Plan aims at wiping out the waiting list of telephones by 1990 replacement of 850,000 lines of manual exchange equipment, increasing the number of satellite earth stations from 32 to 67, commencement of production of digital electronic switching equipment at two more new factories and doubling direct exchange lines and telex connections.

The study says there is urgent need to formulate an action plan to identify the role of the private sector in regard to the products to be manufactured, the usage of technology and marketing strategy.

The study calls for immediate police decision on the type standard and procurement of technology, its distribution to different manufacturers, pooling and distribution of indigenous technology, creation of facility for the manufacture of sophisticated components for digital electronic exchange, pricing policy in relation to the public sector, infrastructural support such as trained manpower, R and D centres, ancillarisation and location of new units and setting up of a single agency to deal with all aspects of manufacture of telecommunications equipment.

The study says the density of telephones in India is low not only in comparison with that of developed countries but also among developing countries. As on 1 January 1981 while the telephone availability in USA was 83.74 per 100 persons, in Sweden 79.5, in Canada 67.2, in Australia 52.9, in Japan 49, in Malaysia 4.4, Mexico 7.5, Brazil 6.3, the availability in India stood at 0.4 per 100 persons.

CSO: 5550/0051

FIRST YEAR OF INSAT-1B TERMED 'SATISFYING'

Calcutta THE STATESMAN in English 30 Aug 84 p 9

[Text] Bangalore, Aug 29--INSAT-1B satellite enters its second year in space tomorrow with a "satisfying" record of achievements in its three-dimensional services, reports UNI.

"It has been a very satisfying mission," Professor P.P. Kale, director of the satellite's Space Segment Project, said. "We have been able to provide all the services contemplated. The availability of its systems has been hundred percent."

Asked about its utilization, he said all the targets set for its gradual use in the fields of telecommunications, meteorology and radio and television networks were achieved during its first year in space.

Professor Kale said of the 4,000 long-distance telephone circuits available on the satellite, 1,300 have already been deployed. The number of circuits would go up to 2,000 by mid-October.

He said during the second year of operation, 3,500 circuits were expected to be "loaded." Circuits would be deployed during the third year.

Referring to the meteorological segment of the satellite, he said the Indian Meteorological Department was using the satellite fully for accurate forecasting. Fifteen Secondary Data Utilization Centres had been set up at different operational forecasting offices of the department.

These centres feed the data collected to the Meteorological Data Utilization Centre at New Delhi using communication links provided by the Posts and Telegraphs Department. Ultimately, 20 SDUC locations will be set up.

CSO: 5550/0052

## BRIEFS

**INSAT SHORTFALL**--Bangalore, Aug 26 (UNI)--The projected telecommunication circuit capacities of Insat-I and Insat-II systems may not meet the capacity requirements planned through satellite by the telecommunications department. The potential traffic requirements through satellites were estimated at 11,500 circuits by the end of 1985 and 32,000 by 1990. The satellite earth stations at all primary and remote centres were yet to be established and thus there would be a shortfall of satellite circuits, according to a paper titled "Utilisation programme of Insat system" presented by Mr M.A. Chowdappa, member of the posts and telegraphs board, at a symposium on communications held at the Indian Institute of Science, here. He said by September 1987 Insat-I B would provide 3,700 telecommunication circuits and Insat-I C, to be launched in 1986, would have 500 circuits. The Insat-I system would have a total capacity of 8,000 two-way circuits and the department had planned to utilise 6,400 circuits. The paper said some of the public undertakings had asked for satellite services to places where P and T had not installed earth stations. Definition of dedicated networks to carry voice data, teleprinter and facsimile services, was going on for the Steel Authority of India Limited, Visakhapatnam Steel Project, National Thermal Power Corporation and the national Hydro-Power Corporation. The paper said the centre had sanctioned 18 more earth stations in remote areas. [Text] [Calcutta THE TELEGRAPH in English 27 Aug 84 p 5]

**AURANGABAD TV TRANSMITTER**--New Delhi, Aug 26 (UNI)--The 109th television transmitter in the country will be commissioned tomorrow at Aurangabad in Maharashtra. It will be the ninth transmitter in the state. The transmitter will cover an area of 1,800 square km. Nearly 55.2 million people in Aurangabad, of which 22.8 million are in rural areas, will benefit from this transmitter. Some of the townships to get TV coverage are: Kolhan, Chikli-than, Sar and Ohar. This is one of the series of transmitters being installed in the country during the period July-October 1984 as part of a massive expansion plan aimed at providing coverage to 70 percent of the country's population. [Text] [Calcutta THE TELEGRAPH in English 27 Aug 84 p 5]

**COSMONAUT TO JOIN U.S. SHUTTLE**--The second Indian cosmonaut will go into space in 1986 aboard the U.S. space shuttle carrying INSAT-1C satellite. This has been announced by the Indian Space Research Organization in a press note in Bangalore today. The Indian cosmonaut will be a scientist or an engineer from the organization. The satellite will be placed in the geostationary orbit. This follows India's acceptance of the offer of the U.S. National Aeronautics and Space Administration to fly an Indian payload specialist aboard the shuttle. [Text] [BK271354 Delhi Domestic Service in English 1230 GMT 27 Sep 84]

**DIRECT DELHI-KABUL TELEPHONE SERVICE**--The direct Delhi-Kabul telephone service was inaugurated by the communications minister, Mr V.N. Gadgil, today. He exchanged greetings with his Afghan counterpart, Mr Muhammad Aslam Watanjar. Mr Gadgil said the close ties of friendship, cooperation, and cultural bonds between the two countries will be further strengthened by the establishment of the direct link. Reciprocating the greetings, the Afghan communications minister said the direct link will improve the quality and quantity of the telephonic communications between the two countries. The direct link, which was earlier restricted to a few hours daily, will now be available round the clock. [Text] [BK271019 Delhi Domestic Service in English 0830 GMT 27 Sep 84]

**TV TRANSMITTERS COMMISSIONED**--A TV transmitter was commissioned today at Chandrapur, Maharashtra. It is the 131st TV transmitter in the country and the 15th in the state. It will have a range of 25 km and will cover a population of over 4 lakhs. [Text] [BK221624 Delhi Domestic Service in English 1530 GMT 20 Sep 84 BK] A TV transmitter was commissioned today at Mahboobnagar in Andhra Pradesh. It is the 133d TV transmitter in the country and the 15th in the state. It will cover an area of 2,000 square km with a population of nearly 350,000. [Excerpt] [BK221624 Delhi Domestic Service in English 1530 GMT 19 Sep 84 BK] A TV transmitter was commissioned today at Nanded in Maharashtra. It is the 135th transmitter in the country and the 16th in the state. It will cover an area of 2,000 square km with a population of about 5 lakhs, half of them in rural areas. [Excerpt] [BK221624 Delhi Domestic Service in English 1530 GMT 21 Sep 84 BK] A TV transmitter was commissioned today at Kumbakonam in Tamil Nadu. It is the 136th TV transmitter in the country and the 7th in the state. It will cover an area of 1,80 [as printed] square km with a population of nearly 9 lakhs, mostly in rural areas. [Excerpt] [BK240953 Delhi Domestic Service in English 1530 GMT 22 Sep 84 BK] A TV transmitter was commissioned today at Jalgaon in Maharashtra. It is the 137th TV transmitter in the country and the 17th in the state. It will cover an area of 1,600 square km with a population of over 4 lakhs. [Excerpt] [BK240953 Delhi Domestic Service in English 1530 GMT 23 Sep 84 BK]

CSO: 5500/4700

## COMMUNICATION SYSTEM CONNECTS MORE AREAS

Tehran SOBH-E AZADEGAN in Persian 22 Aug 84 p 2

[Text] By March, 1984, a total of 1,380 villages had communications coverage. This was announced by Mohammad Sadeq-Zabihi, a member of the board of directors of the Iran Communications Company, in a press conference marking 'State Week' on Tuesday noon. He explained the functions of the policies and guidelines of the Iran Communications Company during the past year. He said: 'State Week' is a very appropriate occasion for the people's servants to explain their actions during the last year, and thus assure the dear martyr-nourishing nation of Iran that they will continue to the best of their ability to strive to remove the obstacles before them. He then pointed to the actions of the communications company during the past year, and said: Before the Islamic revolution, villagers were among the most deprived people in our society, and little attention was given them. Now one of the state's policies is to expand communications in the villages, and the state has followed it following the Islamic revolution and is giving it more attention.

In fact, colleagues and brothers in the Iran Communications Company succeeded in connecting 350 villages to the communications network during the past year. By this accounting, a total of 1,380 villages had communications coverage by the end of March 1984. In this connection, from the beginning of the Islamic revolution until March 1984 the total village population with communications coverage reached 3 million persons. Zabihi then pointed to other activities carried out by the Iran Communications Company, and said: In order to help the people and to attain self-sufficiency and industrial independence, our colleagues mainly began with domestic production. One hundred twelve thousand six hundred automatic city telephones were installed during the March 1983-March 1984 year, and of these 71,000 were put into operation. He added: Before the Islamic revolution, only 89 cities used automatic telephones, while after the Islamic revolution this figure reached 285, and of these, 83 belong to the March 1983-March 1984 year. He said: In addition, in the area of international channels, we are now able to establish connections, directly and indirectly, with all the world's countries connected to the international network. In this area, in the March 1983-March 1984 year alone, we added 57 channels to the international channels. Despite all the problems during this year, we were able to connect four Iranian cities to the international network, so that a total of 41 Iranian cities are connected to international networks.

9597

CSO: 5500/4751

## INTER-AFRICAN AFFAIRS

### PANA OFFICIAL DISCUSSES PROBLEMS

AB211905 Lagos NAN in English 1420 GMT 21 Sep 84

[Text] Harare, Sept 21 (NAN)--The PAN AFRICAN NEWS AGENCY (PANA) was not established to supplant the older news agencies of the West, Prof Alfred Opubor, PANA's adviser on information, said in Harare on Wednesday.

In a Zimbabwe television programme, Guest of the Week, Prof Opubor said that Pana was Africa's contribution to the pluralism of viewpoints in the world. The southern African correspondent of the NEWS AGENCY OF NIGERIA (NAN) quoted the PANA adviser as saying: "In the past, our voices were not heard, now we have come to reclaim our birthright."

Prof Opubor said that the major problem that faced the establishment of PANA was now how to create a continental communications infrastructure which "allows a continental wire service to come into operation." "In terms of the telecommunications infrastructure, we have had more or less to put together what exists on the continent," he added.

Prof Opubor expressed satisfaction with the progress being made on the Pan-African Telecommunications (Panaftec) project, adding that work was going on at national levels in the creation of satellite earth stations. "These will give us greater capacity for news transmission," he said, but added, "We are victims of the high tariffs charged at the national and international levels." Prof Opubor said that PANA's problems included late payments from member-countries, which made budgeting difficult, and inadequate staff.

CSO: 5500/1

INTER-AFRICAN AFFAIRS

RFI GIVES FIGURES ON LISTENERS IN AFRICA

AB141817 Kinshasa AZAP in French 1900 GMT 13 Sep 84

[Text] Kinshasa, 13 Sep (AZAP)--Radio France International [RFI] has just released details on the number of its listeners following opinion polls carried out between June 1983 and January 1984 on the listening rate in African countries.

According to the African Documentation and Information Agency, which provided these details, RFI is the foreign radio with the most listeners in French-speaking Africa: 35 percent of French speakers in Douala, 42 percent in Kinshasa, 39 percent in Abidjan, 30 percent in Brazzaville and Dakar and 22 percent in Libreville.

The Voice of America, which comes second, obtained the following scores: 30 percent in Douala, 26 percent in Kinshasa, 12 percent in Brazzaville and Libreville and 9 percent in Dakar.

CSO: 5500/118

## BRIEFS

NEKEMPTÉ, METTU TELEVISION—Television transmitting centres built in accordance with the Revolutionary Government's directive were inaugurated yesterday in Nekempté and Mettu towns of Wollega and Illubabor regions, respectively. Comrade Feleke Gedle-Ghiorgis, Minister of Information and National Guidance and COPWE Central Committee member, said the directives given by Comrade Mengistu Haile-Mariam, Chairman of the PMAC and COPWE and Commander-in-Chief of the Revolutionary Armed Forces, towards the expansion of the communications media are being implemented. The new television transmitting centres would not only serve major towns but also other smaller towns in adjacent areas. Comrade Negussie Fanta, COPWE Central Committee member and First Secretary of the WPE Committee for Wollega region, spoke after inaugurating the centre in Nekempté noting the pivotal role of mass media. [Excerpt] [Addis Ababa THE ETHIOPIAN HERALD in English 2 Sep 84 p 1]

CSO: 5500/121

## FRENCH TV EXPERTS LEAVE AFTER VISIT

AB141709 Conakry Domestic Service in French 1945 GMT 13 Sep 84

[Excerpts] Experts of the French Television Network [TDF], who arrived in our country on Sunday, left Conakry this afternoon after taking stock with the cadres of the Ministry of Information of the present and future problems concerning the development of the Guinean Radio and Television System [RTG]. The visit of the delegation follows the discussions that Guinean Information and Tourism Minister Captain Mohamed Traore recently held with French Cooperation Minister Christian Nucci in Paris.

The last session of the TDF information commission took place this morning at the Nations' Palace under the chairmanship of Ansan Bangoura, the permanent undersecretary of the Ministry of Information and Tourism.

Allain Bezie, the leader of the TDF delegation who is also the general manager of the Sofratel [expansion unknown], briefed him on the outcome of the commissions' 3 days of deliberations aimed at the establishment of a development plan for the RTG. The document elaborated by the Guinean and French teams includes a list of the problems identified by the experts and the development plans for both the radio and television sectors.

In the case of the radio the problems identified fell into the following categories: better attainment of the goal to reach the public; regaining confidence in the fields of production and documentation; and finally the organization of the production staff, training and specialization. As for the plans for the development of the radio, they will include the expansion of the audience reached and the easing of its revenue situation, the establishment of a program of regionalization beginning with the creation of a second network as well as the establishment of a department of archives.

The following problems were identified in the television sector: technical maintenance; better utilization of the equipment and existing personnel; the enhancement of the potentials of production; and research for coherence between the PAL and SECAM systems. The objectives of the development of the Guinean television will include the expansion of its coverage area; the systematic expansion of the program of transmission; a program of regionalization; and the standardization of production in [words indistinct] and the enhancement of work methods.

At the end of his exposition, Allain Bezie of the Sofratel sketched out a number of solutions for immediate action at the first stage. These include the installation of frequency modulation in the areas of poor reception: Kindia, Mamou, Labe, Faranah, Gabona, Segere, Kankan, Beila, Zerikole, Kamsar, and Conakry. In their report, the French Television experts also insisted on professional training of workers [words indistinct] and the organization of seminars here. All these considerations will be listed in a final report that the TDF will present to the Guinean side by the middle of October. After the meeting, the TDF mission was received in audience by Information and Tourism Minister Capt Mohamed Traore to whom it submitted the results of its deliberations. After explaining to them the framework within which Guinean journalism evolved, the minister of information and tourism talked to the TDF experts on the elaboration of a judicial framework for the RTG. Finally, Capt Mohamed Traore reaffirmed to the TDF delegation the readiness of the Military Committee for National Redress and, especially of his department, to work toward the success of the RTG development projects.

CSO: 5500/120

## BRIEFS

PANA BROADCASTS TO ASIA--Nairobi, 20 Sep (IPS/NAN)--Kenya now spends less money to buy news as a result of the PAN AFRICAN NEWS AGENCY (PANA) service, Information and Broadcasting Minister Robert Matano said in Nairobi yesterday. Receiving PANA's director general, Mr Ousamane Diallo, the minister also said that Kenya had reduced its dependence on foreign news agencies for news from African countries. The news agency, which is funded by African governments, was set up three years ago with its headquarters in Dakar, Senegal. Mr Matano said that the agency's service has enabled Kenya to start an "Africa Today" daily programme on its radio. The idea of having an African news agency is also one way of enhancing development in the Third World, he added. Mr Diallo said that Kenya would soon be a relaying point for PANA's newscast to Asia. PANA's first sponsored seminar for science writers opened in Nairobi today. [Text] [AB211049 Lagos NAN in English 1040 GMT 21 Sep 84]

CSQ: 5500/1

ARAB LOAN FOR SATELLITE PROJECT

Harare THE FINANCIAL GAZETTE in English 24 Aug 84 p 7

[Text]

A LOAN of US\$4.7 million has been agreed by the Kuwait Fund for Arab Economic Development to help finance Mozambique's US\$17 million regional satellite communications project.

Reporting the loan agreement for Telecomunicacoes de Mocambique's (TDM) organisation, the Africa Economic Digest said recently that the project was part of the SADCC transport and communications programme. It involved building earth satellite stations at Beira, Nampula and Maputo to improve internal links and provide direct lines to Zimbabwe, Malawi and Tanzania.

It also forms the preliminary phase of TDM's US\$152 million 10-year expansion programme, which is another SADCC scheme. The Kuwait fund's loan is for 20 years including three years' grace and carries 2½% annual interest, said the AED report. Repayments are in 34 six-monthly instalments beginning in December 1987. Co-financing is being provided by France's Caisse Centrale de Cooperation Economique.

Work on the project has already started and completion is scheduled for 1986.

CSO: 3500/115

## BRIEFS

**INTERNATIONAL TELEPHONE SYSTEM**--An international telephone direct dialing system is to be introduced in major cities in the country. The minister of communications, Lieutenant Colonel Ahmed Abdullahi, told the NEWS AGENCY OF NIGERIA that the system would enhance efficiency and minimize problems encountered by the Nigerian external telecommunications NET. [Excerpt] [AB122100 Kaduna Domestic Service in English 1700 GMT 12 Sep 84]

**EDUCATIONAL RADIO RESUMES SOON**--The Federal Radio Corporation of Nigeria, FRCN, is making efforts to resume its educational service transmission as soon as possible. The service went off the air some weeks ago. The FRCN Director General, Mr George Bako, told members of the Board of Governors who were on an inspection tour of the corporation's installations in Lagos yesterday that the station stopped transmission due to a fault at its transmission station at Ijede. He gave the assurance that the educational service would resume broadcast as soon as the relevant spare parts were available to replace the bad ones. Mr Bako announced that the corporation had just taken delivery of two sophisticated outside broadcast vans. The vehicles, which were ordered in 1979, have inbuilt transmitters. [Text] [AB201303 Lagos Domestic Service in English 0600 GMT 20 Sep 84]

**ONDO RADIO, TV MERGED**--Akure, 21 Sep (NAN)--The Ondo State Broadcasting Corporation and the state television have been merged into "Ondo State Radio-vision Corporation," the commissioner for information, youth and culture, Mr Oladele Aladegbaiye, announced yesterday in Akure. Speaking at the opening of the second delegates' conference of the State Radio Television and Theatre Workers Union, Mr Aladegbaiye said that the move was part of government's efforts to maximise the contribution of both organisations to the development of the state at a reasonable cost. He said that mass media in the country should direct their efforts toward the promotion of social, cultural, and industrial development and political stability. Mr Aladegbaiye advised the new corporation to reduce the time allocated to reports on crime, scandal and gossip. [Text] [AB211253 Lagos NAN in English 1244 GMT 21 Sep 84]

CSO: 5500/1

BOP TELEVISION REORGANIZATION PREDICTED

Johannesburg RAND DAILY MAIL in English 19 Sep 84 p 7

[Article by J. Manuel Correia]

[Text] THE head of Bop TV's programming department, Mr Tim Ellis, who was based in Mmabatho, has resigned, the Rand Daily Mail learnt yesterday.

And speculation is rife that within a year the contracts of many in top management will not be renewed, including that of the station's director, Mr James Neill.

Mr Ellis, who is understood to have accepted a position in TV production in Johannesburg, was not available for comment yesterday.

His reasons for leaving are believed to be personal and not based on personality and programming clashes.

Indications are that Bop TV will increasingly press for Africanisation of top posts.

This will probably entail, in the intervening period before contracts are terminated, thorough management training of black executives and broadcasting staff either locally or overseas.

Although Bop TV has some competent announcers and interviewers, TV observers agree that many more are in sore need of professional training.

Part of the problem arose

over the speed at which Bop TV was set up, which made it necessary to import skills — and buy programmes — in a hurry.

Now that Bop TV is a firmly established station with a distinct black character, it stands to reason that this image must be firmly projected. Whites will still be employed because Bophuthatswana is committed to non-racism in every sphere.

However, where possible, the country wants its own citizens to fill key posts on Bop TV and Radio Bop.

It is also hoped that the gradual shift in the power axis will bring about greater programme stability, doing away with erratic programming and last-minute changes.

On several occasions, series or programmes bought overseas have been changed at the last minute because of non-arrival, or dropped altogether because they held no interest for predominantly black audiences.

There have also been cases where senior civil servants have forced changes to accommodate programmes which the government wanted. One such case recently was the opening of the Mmabatho International Airport.

NASA TO RECEIVE FUNDS FOR VOA RELAY SATELLITE

LD222245 Moscow TASS in English 2236 GMT 22 Aug 84

[Text] Washington, August 23, TASS--According to the SATELLITE WEEK, the U.S. Information Agency has set aside for the National Aeronautics and Space Administration 1.5 million dollars to develop a gigantic communications satellite with a nuclear powerpack.

Officials of the Reagan administration have admitted that the satellite is intended primarily to relay transmissions of the radio subversion centres Voice of America, Liberty and Free Europe.

The weekly stresses that the reason for the heightened interest of the radio subversives in using artificial earth satellites consists in the difficulties encountered by the United States in its attempts to get other countries to host in their territories transmitters of those radio stations.

CSO: 3500/1001

## VOA SAID TO LAUNCH 'MASSIVE PROPAGANDA OFFENSIVE' IN SOUTH ASIA

LD161209 Moscow TASS in English 1041 GMT 16 Sep 84

[Report from TASS correspondent Aleksandr Bokhonko]

[Text] New Delhi, September 16, TASS—The United States is intensifying "psychological warfare" against the developing countries. According to the Indian press the U.S. Information Agency (USIA), the mouthpiece of U.S. propaganda, has begun the implementation of a large-scale programme to modernize and enlarge the existing subversive "Voice of America" (VOA) radio centers in various parts of the world. The newspaper, HINDUSTAN TIMES, reports that Sri Lanka is to become in South Asia the main base of the Washington poisoners of airwaves. The USA has already secured a permission to build six powerful VOA radio-relay stations on the island. The stations will broadcast at all countries of South and Southeast Asia round-the-clock. Afghanistan, India, and other non-aligned countries which pursue an independent peaceful foreign policy are particularly under the watchful eye of the radio saboteurs from Washington.

The massive propaganda offensive by U.S. imperialism is aimed at complicating the situation in those states, at providing an ideological substantiation for the unprecedented build-up of U.S. military might in the Indian Ocean and the Persian Gulf area.

The Indian press points out that "psychological warfare" which the U.S. ruling circles have unleashed against the developing countries is the direct consequence of the aggressive militarist course of the Reagan administration. The newspaper PATRIOT writes that every time when international tension increases and the aggressiveness of U.S. imperialism grows, the USA intensifies ideological attacks on peace-loving countries whose foreign policy runs counter to Washington's imperial ambitions.

CSO: 3500/1001

ESA FUNDS PROSAT SATELLITE COMMUNICATIONS PROJECT

Paris AFP SCIENCES in French 9 Aug 84 p 33

[Article: "ESA: \$9 Million To Demonstrate the Value of Mobile Communications"]

[Text] Paris—Between now and the end of 1987, the European Space Agency (ESA) will devote some \$9 million (10 million of European accounting units at \$0.89 each) to a series of demonstrations showing the interest and reliability of permanent satellite-communication services with mobile units, on the road, in the air or at sea.

Six ESA member states (the FRG, Belgium, Spain, France, Italy, the United Kingdom) and Norway, an associated state, have indeed just decided to undertake the second stage of the "Prosat" project designed to place European industry in a position of strength, in anticipation of the time when the new satellite generations of the 1990's will have to be prepared; among other things, these satellites will make it possible to communicate with mobile units, such as aircraft, boats, trucks or cars.

In the very fierce competition which is now taking place to prepare this type of end-of-the-century communications, Europe does not want to be outdone by the United States and Canada, where systems of this type are being engineered, as they reflect an actual need of these countries' immense territories.

One of the objectives of the second stage of the "Prosat" project is to make small maritime terminals so that all types of merchant ships, even with small tonnages, could afford satellite communications. The project also provides for new services in the aeronautical and ground communications sectors, using the space sector of the "Inmarsat" navigation and maritime communications system.

Thus, one day, we may see truck drivers remain in touch with their companies at all times, to save fuel by improving the management of their round trips.

Thanks to the amount allocated to the second stage of "Prosat," it will be possible to continue studies, equipment and demonstrations to determine precisely the characteristics of future communication systems with all types of mobile units.

# CAPACITY, CAPABILITY, COSTS OF TELECOM-1

Paris L'USINE NOUVELLE in French Supplement to 13 Sep 84 p 25

[Article by Herve Rolland: "Telecom 1: How to Use It"]

[Text] As it enables companies to communicate faster with their partners or clients, the first French commercial communications satellite should soon prove vital.

Telecom 1 marks the emergence of the first French commercial telecommunications satellite. For companies, it is the new means that will actually enable them to enter the era of widespread communications promised for the end of the decade.

This is an opportunity that several of them are about to seize, but with somewhat disappointing reservations. It is a far cry from the enthusiasm we were entitled to expect, considering the potential of Telecom 1.

This may be because the satellite (or, more accurately, the two satellites that will constitute the Telecom 1 system) was not yet operational before its launching by Ariane early in August.

But the true explanation rather appears to lie with the ignorance of what Telecom 1 and, more generally, tomorrow's telecommunications satellites will offer to companies.

Yet companies must communicate with their partners or clients as fast and as often as possible. Two different services offered by Telecom 1 are of direct interest to companies: the intra-company service and videotransmission.

In the first case, several applications are offered. One example is the connection of various office-automation terminals (to provide an "electronic mail" function). But the most important application is expected to be the high-throughput transfer of digital data: it makes it possible to copy computer files, and also blueprints or photographs, after they have been digitized. The transfer of a magnetic tape of 28 megabytes (8 bit-bytes), for instance, will take one hour at the rate of 64 kilobits per second. But, with Telecom 1, it is possible to select a throughput ranging

from 2.4 kilobits to 2 megabits per second. Depending on the urgency, therefore, there is a great flexibility in the choice of transmission speed, which is not without affecting the cost. A unilateral point-to-point link (transfer of a file from one computer to another) at 64 kilobits per second will cost 6 centimes per second during peak hours (from 9:00 to 12:00 and from 14:00 to 17:00). It will then cost close to FF 20,000 to transfer the 28-megabyte magnetic tape. On the other hand, during night hours, the cost will drop to less than FF 7,000, due to the application of a 0.3 coefficient!

Still at the rate of 64 kilobits per second, it will take 10 seconds--and it will cost 60 centimes--to transfer an A4 size page [210 x 297 mm] (i.e. approximately 500 kilobits of data). The first transmission tests will be made by IBM France, using two computers located at its research and study center in La Gaude, near Nice, and at its Marne-la-Vallee factory. Other clients have expressed interest. MATRA-Space [Mechanics, Aviation and Traction Company-Space] is one of them; it would connect its Velizy and Toulouse centers. According to Pierre de Benque, in charge of data processing and office automation at MATRA-Space, the company has selected a 64-kilobits-per-second application and is considering a projected 2-megabits-per-second link for videoconferencing. This is the most elaborate version of the "teleconferencing" service which is the responsibility of Erol Barut at France-Cables and Radio (FCR), the DGT [General Directorate of Telecommunications] subsidiary marketing Telecom 1. "Bear in mind," he added, "that this satellite is complementing and enhancing existing teleconferencing means: in particular, audioconferencing (conversation on the phone and through telewriting) which is possible through the Caducee network to which 1,800 companies are already subscribing."

To audioconferencing, videoconferencing adds the possibility of seeing the person with whom one is talking. For the time being, the service uses one of the repeaters of the ECS1 satellite. "Actually, FCR is marketing a comprehensive videoconferencing service," Erol Barut went on. "The businessman tells us what he needs, and we advise him on what network is best for him, what cost most advantageous, etc. After that, clients may choose to use a public studio, like the one in Rue des Archives in Paris, or to get their own. That will cost approximately FF 600,000 for color videoconferencing functions. As for the hourly cost of such a transmission, it will be FF 16,000 to 18,000." Prohibitive? Not necessarily, for videoconferencing is quite possible with foreign countries, the United States for instance. With the additional advantage that it will multiply the number of partners involved in the discussion on both sides of the Atlantic. Just compare this hourly cost with the travel expenses of one or several people!

All these functions of Telecom 1 (data processing, videoconferencing) are achieved through digital links. The satellite also offers an analog link mode: videotransmission. In that case, a TV-type message is broadcast to multiple receiving points. The nature of the demand is highly variable: it can be used for a punctual event, such as a statement from a chief executive officer to all employees in the various company centers, or for a mere prestige operation (launching of a new product); or it can be used for regular communications. Hewlett-Packard provides a typical example. "We represent 80,000 people throughout the world," Mr Papeland explained.

"Our sales force's information must be kept up-to-date. Formerly, we had to send our laboratory heads on trips around the world. Nowadays, we prefer videotransmission. For a sales force of 50 people, profitability is achieved in a few hours."

#### Tariffs

Telecom 1 users' tariffs are based on a system similar to that used for the telephone; they breakdown into three items:

##### - A connection charge

It is a single one-time charge representing the cost of installation; it varies according to the throughput required:

<u>Charges</u>	<u>Low Throughputs</u>	<u>Medium and High Throughputs</u>
	<u>9,600 bits/s</u>	<u>48 Kbits to 2 Mbits/s</u>
Fixed charge	FF 2,000	FF 100,000
Charge per site	FF 4,000	FF 20,000

##### - An Annual Subscription Charge

It varies according to the number of sites used by the company and the number of connecting devices at the various sites.

<u>Number of Connecting Devices</u>	<u>Low Throughputs</u>	<u>At Least One Access At</u>	<u>All Accesses At</u>
		<u>48, 56, 64 Kbits/s And</u>	<u>More Than</u>
		<u>One At More Than 64 Kbits/s</u>	<u>64 Kbits/s</u>
1	FF 25,000	-	FF 100,000
2	FF 44,000	FF 170,000	FF 190,000
3	FF 63,000	FF 222,000	FF 222,000
4	FF 82,000	FF 243,000	FF 243,000
per additional connecting device	FF 19,000	FF 21,000	FF 21,000

##### - A Basic Charge

It is of 6 centimes per second (full tariff). Various modifying coefficients are applied, depending on the hour, the rate of transmission, the type and number of links and the type of subscription.

9294

CSO: 5500/2503

## BRIEFS

SPOT IMAGE-CANADA CONTRACT--Paris--The images transmitted by the French satellite for remote sensing of earth resources, SPOT, will be received in Canada by two stations owned by the Canadian Remote Sensing Center (CCT), announced a communication from the French company SPOT IMAGE, which adds that an agreement protocol for this purpose was signed on 27 July. The images collected by SPOT--whose launching by the National Center for Space Studies (CNES) is planned for next year--will thus be received directly by the CCT stations in Prince Albert (Saskatchewan) and Ottawa (Ontario), which will then redistribute them to Canadian users, or through SPOT IMAGE, to users outside Canada. The protocol stipulates that images concerning United States territory, transmitted by SPOT satellites and received in Canada, will be supplied to SPOT IMAGE Corporation, the American subsidiary of SPOT IMAGE, located in Washington and responsible for marketing SPOT data in the United States. This French-Canadian agreement is the first reached by SPOT IMAGE outside Europe with an organization that has direct receiving stations for data from the future French remote sensing satellites. "It illustrates the importance assigned by the Canadian government to the development of remote sensing space technologies, and stresses the rapid growth of technical cooperation between France and Canada in this field," the communication continues. [Text] [Paris AFP SCIENCES in French 2 Aug 84 p 29] 11,023

TELECOM-1 RECEIVING STATION--Toulouse--The first digital data ground station for businesses working with Telecom 1, was installed by crane on 9 August on the terrace of the Malaret Telecommunications Transit Center in Toulouse. The satellite access module includes a 3.50 m-diameter parabolic antenna consisting of a reflecting surface, a reflector, a power supply, and a support. Because of its size and the positioning precision of the satellite, stabilized on three axes, the antenna does not have an automatic tracking system. Radio frequency equipment processes the received signals and route them to a TDMA (time-division multiple access) terminal, the hub of the ground station, which manages the satellite access logic. This terminal assembles and disassembles the information packets. Tests will begin in September and the station will be operational in October. It will then be accessible to all businesses which want to communicate with each other by these means. Matra, Saint-Gobain, and the National Meteorological Service will be the station's first customers. [Text] [Paris AFP SCIENCES in French 16 Aug 84 p 16] 11,023

ARABSAT TESTING COMPLETED--Integration and testing of the first flight unit of the Arabsat satellite were completed at the Aerospatiale Cannes facilities, and the satellite is therefore ready for official delivery to the Arabsat organization which will arrange to have it shipped to the launching site, it was announced on 10 September by Aerospatiale. The first flight unit will be launched by Ariane at a date to be determined, depending on the launcher availability. The contract for the development, production and testing of three Arabsat satellites was signed in May 1981; therefore, the first satellite is delivered 39 months after the contract was awarded. The second flight unit is now being integrated and tested in Cannes. Its delivery, Aerospatiale indicated, is scheduled for January 1985, for a May 1985 launching on the Space Shuttle. The third satellite is the spare unit. The Arabsat satellites will provide point-to-point communication links (telephone, radio, TV, telex, data transmission, etc.) and community television to the 22 countries member of the Arab League. [Text] [Paris AFP SCIENCES in French 13 Sep 84 p 15] 9294

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## NORWAY

### BRIEFS

FRANCE PENETRATES DATABASE MARKET--Cap Gemini Sogeti, the French and European number one in data processing services, is going to design and make the public videotex system (consultation of electronic information from a terminal) which the Norwegian administration has decided to provide for itself. In France, the firm had already supplied the first mockup of the electronic directory and provided for supervision of the project. For export, it is the first to impose the French videotex technique on a foreign administration. The credit for this goes in large part to Christer Ugander, the director of the Europe group, a Swede who spent his entire career with Cap Gemini Sogeti. The contract, which amounts to 14 million, will be divided between the French prime contractor and the American computer supplier, Tandem Computers. [Text] [Paris LE NOUVEL ECONOMISTE in French 3 Sep 84 p 49] 9434

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